



**Abt Associates Inc.**

55 Wheeler Street  
Cambridge, Massachusetts  
02138-1168

617 492-7100 *telephone*  
617 492-5219 *facsimile*

Hampden Square, Suite 500  
4800 Montgomery Lane  
Bethesda, Maryland  
20814-5341

301 913-0500 *telephone*  
301 652-3618 *facsimile*

101 North Wacker Drive  
Suite 400  
Chicago, Illinois  
60606-7301

312 332-3300 *telephone*  
312 621-3840 *facsimile*

## **Evaluation of the UMWA Funds Medicare Part B Capitation Demonstration**

**Contract No.:  
500-87-0030(11)**

## **FINAL REPORT**

**March 10, 1995**

*Not for quotation, reproduction, or  
distribution*

### **Authors:**

**William D. Marder, Ph.D.  
Leo B. Reardon  
Carol Irvin, Ph.D.  
Ron Boheim  
Eleni Spheeris**

### **Prepared for:**

**Ronald L. Lambert  
Task Officer  
Health Care Financing  
Administration  
Oak Meadows Building  
Room 2306  
6325 Security Boulevard  
Baltimore, MD 21207-5187**

### **Prepared by:**

**Abt Associates Inc.  
55 Wheeler Street  
Cambridge, MA 02138**

## TABLE OF CONTENTS

Executive Summary . . . . .	i
1.0 Introduction . . . . .	1-1
2.0 Administrative Structure of the Funds' Health Programs . . . . .	2-1
3.0 Evaluation Design and Data Sources for the Quantitative Analysis . . . . .	3-1
4.0 Characteristics of UMWA HRF Medicare Beneficiaries . . . . .	4-1
5.0 Cost and Utilization of Medicare Part B Services Among UMWA HRF Medicare Beneficiaries . . . . .	5-1
6.0 Cost and Utilization of Medicare Part A Services Among UMWA HRF Medicare Beneficiaries . . . . .	6-1
7.0 Comparison of Cost and Utilization of Medicare Services Between Male UMWA HRF Medicare Beneficiaries with and without Department of Labor Black Lung Benefits . . . . .	7-1
8.0 Comparison of Cost and Utilization of Medicare Services Between Female UMWA HRF Medicare Beneficiaries and a Sample of Female Medicare Beneficiaries . . . . .	8-1
9.0 Multivariate Analysis of Total Medicare Expenditures Among UMWA HRF Medicare Beneficiaries . . . . .	9-1
10.0 Episodes of Care for Acute Myocardial Infarction . . . . .	10-1

## APPENDIX A LIST OF TABLES

## EXECUTIVE SUMMARY

The UMWPA Part B Capitation Demonstration was conceived as a potential solution to an annual problem that HCFA and the Funds encountered when they tried to determine how much of the Funds claims payments should be attributed to Medicare Part B. By changing the nature of the payments from fee-for-service to a flat rate per member month, the demonstration immediately solved the problem. The evaluation was never intended to address either the costs or the benefits to HCFA or the Funds from eliminating the year end conflict. Rather, the challenge for the evaluation as it evolved was to determine if there were other effects of capitation on the utilization of services, the cost of services provided, or on beneficiary access to care.

Under any circumstances the evaluation would have faced considerable challenges. The demonstration was not structured as an experiment with either a randomized design or a natural control group. Instead, the evaluation was to rely on comparisons from before and after the start of the demonstration. This kind of pre- and post-demonstration comparison is particularly vulnerable to other unrelated factors that could change any of the outcomes of interest during the demonstration. Thus, technological changes that affected practice patterns during the demonstration period could be misinterpreted as effects of capitation. More importantly, external policy interventions that were coincident with the demonstration could easily affect outcomes of interest. There was a major policy intervention that overlay the demonstration. In April 1992, as a result of a federal district court order, the Funds began to reimburse physicians following the Medicare Fee Schedule payment amounts, not their previous usual, customary, prevailing charge methodology. The data for the two fiscal years affected by the new physician pricing strategy are different from the earlier periods. These differences are consistent with an observation reported in the Interim Evaluation Report that the Funds allowed charge levels were much higher than average allowed charges reported by Medicare Part B carriers. As a result of the design of the demonstration and its evaluation, our ability to draw conclusions about the effects of capitation is quite limited.

The evaluation included a review of the evidence for changing behavior in several dimensions, including:

- Annual utilization and cost data for Part B services and the component parts.
- Annual utilization and cost data for Medicare Part A services and the component parts.
- Comparisons of male Funds beneficiaries with and without Department of Labor Black Lung Benefits.
- Comparisons of female Funds beneficiaries with a group of female Medicare beneficiaries whose geographic distribution was similar. and
- Examination of treatment patterns for Funds beneficiaries who had acute myocardial infarctions before and during the demonstration.

In each of these dimensions, we examined data from before and after the implementation of capitated payments to the Funds.

We also reviewed the Funds structure and the programs they implemented to translate their general incentive to provide cost-effective services to beneficiaries. This material was described in detail in the Interim Report. Highlights and an update were presented in Chapter 2. In general, the Funds implemented cost management programs prior to the start of the capitation demonstration. No specific program change could be clearly identified with the demonstration. Rather, the Funds moved forward their agenda for managing the Medicare and supplemental insurance benefits that they offer eligible beneficiaries.

Over the six years of data that we examined, the population of Funds beneficiaries steadily grew smaller and older. The decreased size of the mining industry during the past three decades means that the number of people becoming eligible for benefits is smaller than in the past. In fact, the number of newly eligible people is smaller than the number of beneficiaries who die each year. There has been considerable growth in the number and percentage of beneficiaries in the over-80 categories. These individuals are at risk for very large health care needs and costs. We took steps to insure that the results reported below were not artifacts of the aging population covered by the Funds.

**Part B Utilization and Cost** Comparing Part B utilization and cost before and during the demonstration, we found that:



- Access to care, as measured by the percentage of beneficiaries with any use, remained high throughout the period studied.
- Reimbursement for physician services in the last year of the demonstration were no higher (per entitlement month) than during the pre-demonstration period.
- Reimbursement for physician services grew steadily each year until the imposition of the Medicare Fee Schedule in April 1992.
- Alta allowed charges for physician services were higher than similarly coded services covered by regular Part B carriers until the Medicare Fee Schedule was used. and
- During the demonstration there was no shift in utilization of physician services toward those services associated with managed care, e.g. office visits or visits with primary care physicians, or away from services associated with poorly managed care, e.g. emergency room visits.
- This combination of findings suggest that the demonstration generated modest incentives to manage care with difficult-to-find effects.

**Medicare Part A** Comparing Part A use and costs before and during the demonstration, we found that:

- The proportion of beneficiaries who used any Part A services during a year remained constant.
- Medicare reimbursement for Part A services grew steadily throughout the period.
- There was rapid growth in spending for skilled nursing facilities and home health agency services during the period studied.
- No specific aspect of Part A utilization and cost looked particularly different when the demonstration period was compared to the previous three years.

**Male Beneficiaries with and without Black Lung** Mine workers face considerable occupational health hazards. Among surviving beneficiaries, the identifiable group with the most significant occupational health problems are those eligible for the Department of Labor Black

Lung benefit. We compared these individuals with male beneficiaries who were not eligible for Black Lung benefits to determine if the demonstration might have disproportionately affected one of the groups. The data did not suggest that the demonstration was associated with any significant changes in the costs and utilization of Medicare services by male Funds members.

- Men with Black Lung benefits saw their Part B allowed charges (total and physician charges, but not non-physician charges) fall in real terms after the Medicare Fee Schedule change. This drop was not seen among men without Black Lung benefits.
- No apparent change in utilization accompanied the implementation of the Medicare Fee Schedule.
- Part A utilization and reimbursement for the two groups grew during the six year study period but the differences in levels and growth rates were never statistically significant.

**Female UMWA HRF Medicare Beneficiaries and a Sample of Female Medicare Beneficiaries** We compared female Funds beneficiaries and a five percent sample of women whose health care utilization is captured in HCFA standard analytic files (BMAD-IV). The comparison women were selected to match the state-by-state geographic distribution of the Funds women. Unlike our earlier comparisons within the population of Funds beneficiaries, this part of the analysis allows us to identify general trends in the Medicare population that were at work during the six-year study period. We used women for this part of the study because, relative to men, their unmeasured health status might be more readily comparable. We found that:

- Over the six years the incidence of mortality was slightly higher and increased faster among female Funds members. Thus, health status differences were likely to be important factors in these comparisons.
- The demonstration was associated with few measurable changes in costs and utilization of Medicare services.
- The implementation of the Medicare Fee Schedule, however, was associated with a reduction in Part B allowed charges among female Funds members.

- After the fee schedule change the differences in Part B allowed charges across female Funds members and female Medicare beneficiaries were reduced and insignificant. Prior to the fee schedule change the gap between Funds members and the sample of Medicare beneficiaries were significantly different.
- After the Medicare Fee Schedule change there was a slight drop in the volume of total physician services supplied to female Funds members.
- Female Funds members were more likely to use Part A services than the control group women but the time trends in use and cost were similar for both groups.

**Episodes of Care for Acute Myocardial Infarction (AMI).** We compared the patterns of care provided to UMWA-HRF beneficiaries who were admitted to the hospital for AMIs during the six years studied. We found that:

- Surgical interventions, coronary artery bypass grafts, angioplasties, and coronary catheterizations, were more common during the latter half of the study period but these changes reflect the evolution of treatment rather than events caused by the demonstration.
- The mortality associated with AMI did not appear to change.
- During the demonstration period Part B spending declined as a percentage of total Medicare reimbursements during the 90 days following admission for AMI.
- During the last year of the demonstration managed care incentives associated with capitation might have affected patterns of care for AMI patients, but these effects were swamped by the large changes associated with the use of the MFS to reimburse physicians.

## Conclusion

The UMWA Health and Retirement Funds Capitation Demonstration solved a complicated negotiation problem that the Funds and HCFA had encountered under a fee-for-service reimbursement arrangement. Each year before the demonstration it was necessary for the two parties to determine how much of the Funds reimbursement for Part B covered services was attributable to the Medicare program and how much should be paid by the Funds as part

of their supplemental insurance package. The demonstration solved this problem by a prospective agreement on the capitation amount.

The evaluation endeavored to determine if the capitation payments were a cost-effective means of reimbursing for Medicare's share of the Part B services provided to Funds beneficiaries. During the demonstration, the Funds was directed by the federal district court to use the Medicare Fee Schedule to reimburse physicians. Following use of the MFS there was a dramatic reduction in Part B reimbursements to physicians. In this context, capitation did not appear to be a cost-effective alternative because the capitation rate was not adjusted downward to reflect the more modest average reimbursement for physician services under the fee schedule. It is tempting to conclude that the fee schedule was independent of the capitation demonstration and that the fee schedule determined the reduction in reimbursement amounts. There is no evidence in the evaluation, however, that permits such a clear determination of causality. The two events happened during the same time period and could be related in complicated ways. Thus, we conclude more modestly that there is no evidence to support clearly a conclusion about the cost-effectiveness of capitation for Funds beneficiaries.

Finally, the capitation payments that were in effect during the whole demonstration were generous. They were negotiated based on the participants understanding of provider payments under the fee-for-service system administered by the Funds. With the dramatic reduction in physician fee levels coincident with the demonstration, the Funds received from HCFA capitation payments that were well in excess of the payments made to providers of service. This surplus was essential to relieving the Funds' difficult financial problems. The surpluses also provided a basis for renegotiating the capitation rates. The capitation demonstration was extended beyond July 1993 but at a much lower capitation rate, consistent with the new lower payments to physicians. The incentives to manage patient care will be stronger with the lower capitation rates. Additional research will be needed to determine the impact of the new rates.

## 1.0 INTRODUCTION

Coal miners have extremely hard jobs, and lives in the coal fields ultimately register the accumulated effects of this hardship. Health benefits are accordingly central to the well-being of retired miners and their families. Since the years immediately following World War II, health benefits for retired miners have been provided through a unique institution, the UMWA Health and Retirement Funds (the Funds). The Funds has been an historic innovator in the financing of retiree health care and also in the actual delivery of health care services. More recently, however, this unique institution has faced a particularly acute problem in the financing of the Funds health benefit, for reasons that will be discussed later in this report. Meanwhile, in the mid-1980s, the Funds also became involved in a protracted dispute with the Health Care Financing Administration (HCFA). The Funds administered the Medicare Part B benefit for its beneficiaries, under an arrangement with HCFA whereby the Funds was to be reimbursed the estimated amount that these same beneficiaries would have cost in the traditional Part B program. The problem was that HCFA and the Funds could not agree on the Part B cost of these beneficiaries. However reasonable the dispute, the failure of HCFA and the Funds to agree threatened to make their special relationship unworkable.

In 1990, the HCFA Administrator proposed a new arrangement to resolve the stalemate. The key proposal: HCFA and the Funds would conduct a demonstration in which both parties would agree *in advance* to capitated reimbursement amounts for Part B benefits and administration, rather than attempting each year to estimate, after the fact, what these beneficiaries "would have" cost in the traditional Part B program. This capitation arrangement was expected to end protracted retrospective disputes, to give the Funds and HCFA advance knowledge of what the payments would be, and to provide new incentives to encourage efficient management of the benefit. The original term of the agreement was for three years, from July 1990 through June 1993. Thus was created the Medicare Part B Capitation Demonstration between HCFA and the Funds.

This demonstration raises an important set of issues about the management of the Medicare benefit, for a beneficiary population with particularly intensive health care needs. To understand those issues, HCFA selected an independent contractor, Abt Associates Inc., to evaluate the demonstration. Abt Associates' evaluation employs two principal analytic

approaches to understanding the demonstration: case studies and quantitative analyses of impacts.<sup>1</sup> The case studies were completed in 1992 while the quantitative analyses of impacts have been ongoing since 1991 and were just recently completed.

What follows is the final report of Abt Associates' evaluation. This report will present detailed results from the case studies and summarize what those studies show about the cost, management, and effects of the demonstration on the Funds health benefit. This report will also present the results of the more comprehensive quantitative analysis.

The presentation that follows is divided into ten chapters:

- Chapter 1 provides background on the Funds, the demonstration, and our objectives in evaluating the demonstration.
- Chapter 2 provides details on the administrative structure of the Funds and how the Funds benefit is managed. This chapter includes details of separate field studies of the Funds central office, and of the Field Service Offices (FSOs), focusing on the administration of the Part B health benefit.
- Chapter 3 presents final design of the quantitative study and the data sources that were used.
- Chapters 4 through 10 summarize results of different aspects of the evaluation. Of all the changes in the Funds Part B benefit, what changes can properly be ascribed to the demonstration?

Overall, this discussion will provide an introduction to the Funds benefit, the demonstration, and the evaluation, and then will provide a comprehensive evaluation of the significance of the demonstration. One particular conclusion will emerge from this discussion: the demonstration has solved the immediate problem that provoked it -- it has stabilized the relationship between HCFA and the Funds -- but it has not had any other demonstrable effect on the management of the Funds Part B benefit. That the capitation arrangement appears to provide a workable and stable administrative arrangement is no small achievement, as unproductive and protracted disputes between HCFA and the Funds have been avoided. But there does not appear to have

---

<sup>1</sup> For a detailed review of the evaluation approach, see W.D. Marder, et al., Evaluation Design Report, report submitted by Abt Associates Inc., pursuant to Contract No. HCFA 500-87-0030 (11), dated December 2, 1992. This report is hereinafter referred to as the Evaluation Design Report.

been any other important change in behavior clearly attributable to capitation. Factors having no significant connection to the demonstration -- ranging from a severe cash shortage to critical court decisions -- have had far greater impact on the Funds' behavior over the period of the demonstration. In the chapters that follow, we will present the findings that have led us to this conclusion. This chapter will provide a useful frame of reference for the more analytic material to follow in later chapters. Specifically, this chapter will provide a brief overview of the Funds, the benefits it administers for retirees, the historical relationship of the Funds and HCFA, how the demonstration changed that relationship, and how Abt Associates Inc. has gone about evaluating that change.

## HISTORY AND STRUCTURE OF THE UMWA FUNDS

A complete study of the Funds health benefit touches on some of the most interesting labor history of the post-war era. Our study will focus more narrowly on the recent past, but we do need to set the stage for this discussion by providing a brief background review.<sup>1</sup>

What are collectively termed the United Mine Workers of America Health and Retirement Funds are, in fact, five separate Taft-Hartley trusts and constitute one of the nation's largest multi-employer pension and health benefits plans.<sup>2</sup> Under these trusts, approximately 124,000 beneficiaries receive comprehensive health benefits coverage and approximately 120,000 receive pensions. The beneficiaries under these trusts are retired or disabled mine workers, their dependents, and their survivors. Two of the trusts pay for medical benefits:

- The 1950 Benefit Trust covers beneficiaries who retired before 1976.

---

<sup>1</sup> For a more complete review, see, for example, U.S. Department of Labor, Secretary of Labor's Advisory Commission on United Mine Workers of America Retiree Health Benefits, Coal Commission Report: A Report to the Secretary of Labor and the American People, Washington, D.C., November 1990, pp. 15ff. This report is hereinafter cited as the Coal Commission Report.

<sup>2</sup> The information that follows is taken from Chapter 2 of the United Mine Workers of America Health and Retirement Funds, "Proposal for a Medicare Capitation Demonstration for the Health Care Financing Administration, U.S. Department of Health and Human Services," October 31, 1990 (hereinafter cited as the Funds Proposal), which appears as Enclosure 1A to RFP No. HCFA-IQC-91-020/PK of the Health Care Financing Administration, U.S. Department of Health and Human Services, May 19, 1991 (hereinafter cited as the RFP for the Evaluation).

- The much smaller 1974 Benefit Trust covers mine workers who retired after 1975 and are "orphaned": i.e., their last employer is a) no longer in business or b) has ceased to provide benefits and is no longer signatory to the National Bituminous Coal Wage Agreement (NBCWA).

Exhibit 1.1  
Number and Type of Beneficiaries  
in the UMWA Funds Trusts for Medical Benefits

Beneficiary Type	1950 Trust	1974 Trust	Total
Primary beneficiary	79,000	6,700	85,700
Dependents, others	31,000	6,800	37,800
Total	110,000	13,500	123,500

Source: Funds Proposal, dated October 31, 1990, p.5.

Exhibit 1.1 shows the approximate number of beneficiaries in each of the trusts, as reported by the Funds in the fall of 1990.

The Funds was established originally on May 26, 1946, as the first multi-employer trust jointly administered by employers and union representatives, to provide health and pension benefits for active mine workers, retired mine workers, and dependents. By the mid-1950s, the Funds had established 10 hospitals and a series of multi-specialty clinics in the coal field areas. In the 1950s and 1960s, the Funds developed managed-care programs for its beneficiaries that were relatively novel for their time, including the use of physician "gate-keepers," closed panels of providers, pre-approval of selected ambulatory procedures, concurrent review of hospital stays, and promotion of the dispensing of generic drugs. These efforts marked the Funds as an innovator in the provision of health care to active and retired beneficiaries.

However, from the 1960s to the 1980s, four major changes occurred in these arrangements. First, the Funds ceased to provide medical benefits to active duty beneficiaries and most post-1975 retirees. Responsibility for these beneficiaries was shifted to the individual



signatory companies in the 1978 Coal Wage Agreement.<sup>3</sup> The 1974 Benefit Trust was maintained, notwithstanding that post-1975 retirees now shifted to employer-based plans, in order to provide benefits to post-1975 orphaned retirees.

Second, the Funds stopped providing medical services through its own organization, moving instead toward a more conventional role: reimbursing beneficiaries for their purchases of health care in the open market. The hospitals established under the Funds' auspices were spun off to a non-profit corporation in the mid-1960s. Then, in the 1978 Agreement, beneficiaries were given freedom of choice in selecting medical care providers, "...effectively ending the clinic system and participating physicians and hospitals."<sup>4</sup> With these changes, the innovative provider role the Funds had played came to an end.<sup>5</sup>

Third, over this period, two important public health finance programs began: the Medicare Program and the U.S. Department of Labor (DOL) Black Lung Program. Medicare is primary to the Funds benefit, and the Black Lung Program is primary both to the Funds benefit and to Medicare.<sup>6</sup> The relative importance of these two programs to the Funds and its beneficiaries is clear from the proportion of beneficiaries they cover. As shown in Exhibit 1.2 below, over 80 percent of all Funds beneficiaries are Medicare eligible, and approximately 35 percent are eligible for the DOL Black Lung coverage.<sup>7</sup> The Funds has taken an active role in the administration of both programs. With the inception of Medicare, the Funds reached a

---

<sup>3</sup> The 1978 Agreement also included a guarantee of benefits and introduced a so-called "evergreen clause" or continuing contribution obligation into the agreement. The evergreen clause is currently implicated in a very important series of court cases between the Funds and signatory companies.

<sup>4</sup> Coal Commission Report, p. 26.

<sup>5</sup> While the Funds was no longer a provider of medical services, the Appalachian region continued to benefit from the Funds' earlier efforts: for example, 8 of the 10 hospitals that the Funds had built continued in operation.

<sup>6</sup> Funds beneficiaries are eligible for Medicare coverage in the same manner as other beneficiaries, although Medicare eligibility by virtue of disability is more important for retired miners than for the population at large. In the case of the Black Lung Program, the coverage is for health services for conditions attributable to Black Lung disease.

<sup>7</sup> Note that the data above in Exhibit 1.2 (which describe the Medicare eligibility of Funds' beneficiaries) differ slightly from the corresponding data reported below in Chapter 3. The data in Chapter 3 are drawn from eligibility tapes supplied to Abt Associates by ALTA, while the data reported in this chapter are drawn from the Funds' demonstration proposal. We use the latter source throughout the current chapter, as it provides certain useful stratifications of the data on Funds beneficiaries that are not available on the eligibility tapes.

special agreement with the federal government whereby it would administer Part B for its Medicare-eligible beneficiaries. That arrangement continues today. The Funds plays a similar role in the administration of the Black Lung Program.

Finally, over these years the organization of the Funds evolved in certain key ways. Most important, perhaps, the organization of the Field Service Offices (FSOs) of the Funds was implemented; and, in 1979, the Funds entered its first contracts with ALTA Health Strategies,

Exhibit 1.2  
Eligibility of Funds Beneficiaries  
for Medicare Part B and DOL Black Lung Benefits  
Fall 1990

Eligibility of Funds Beneficiaries for:	Total Eligible	
	Number	Percent
Medicare Part B only	61,000	49 %
Medicare Part B and DOL Black Lung	42,000	34 %
DOL Black Lung only	1,000	1 %
Neither Medicare nor DOL Black Lung (estimated)	19,500	16 %
All Funds Beneficiaries	123,500	100 %

Source: Adapted from Funds Proposal, p. 5.

Inc. (formerly US Administrators) to provide claims processing services and support for cost management programs. The ALTA relationship has continued to the present, but is now being transitioned to a new contractor.

With these changes the Funds entered the mid-1980s, a time distinguished most of all by increasing difficulties in funding the retiree health benefit. At that point, the Funds had evolved from being a provider to a purchaser of health services. It had undergone major changes in organization, and the class of beneficiaries who relied on the Funds had been narrowed to exclude all active miners and most new retirees. New public programs had become

increasingly important for the retired miners still covered by the Funds, and the Funds played an unusual role in the administration of these programs. In the late 1980s, however, the Funds special relationship with HCFA was strained by protracted disagreements over the appropriate cost for the Part B benefit for Funds beneficiaries. More will be said about these disagreements in Section 1.3 below.

#### THE TERMS OF HEALTH COVERAGE PROVIDED BY THE FUNDS

The Funds' health benefits program is designed to provide access for retired miners and other beneficiaries to a broad range of health services. This access is to be provided subject to certain cost controls, but with minimal out-of-pocket expenses for the beneficiary.

The range of health benefits received by UMWA retirees is unusually comprehensive. These retirees have benefits that are not covered under Medicare (such as full coverage of prescription drugs and vision care) and meanwhile enjoy a variety of different limitations on their financial exposure: for example, they have no deductible; no copayments except for \$5 copayments for physician and prescription services; a \$150 annual out-of-pocket cap; no lifetime maximum on major medical expenses; and a special hold harmless provision whereby they face no liability either for medically unnecessary services or for balance bills over Funds reimbursement levels. A recent comparison was made of the health care and retirement benefits of three groups -- members of the UMWA, the United Auto Workers (UAW), and the United Steelworkers of America (USWA). The conclusion of this authoritative comparison was as follows:

On the whole, the health care benefits received by UMWA members are far more comprehensive than health care benefits received by UAW and USWA members.... However, the retirement benefits received by UMWA members tend to be less than the retirement benefits received by UAW and USWA members.<sup>8</sup>

This detailed comparison of coverage is consistent with the point made by essentially all of the people to whom we spoke as part of the qualitative study: health benefits are so important to

---

<sup>8</sup> Coal Commission Report, p. 32.

miners that they have explicitly accepted lower pensions in order to obtain greater health benefits, over decades of labor negotiations. This tradeoff is an understandable, if grim, reminder of the severe health effects of a lifetime as a mine worker.

It is thus not surprising that the Funds health benefit protects retirees more completely than most workers are protected. But from the point of view of cost control, this protection has posed a challenge to the Funds and to HCFA funding of the Part B benefit that the Funds administers. The Funds cost management programs typically work through education, persuasion, communication, or solidarity, rather than through coercive means such as cost penalties or claims denials. Indeed, the Funds is unusual in its reliance on non-coercive measures to induce desired utilization and pricing behavior. A retiree who wants to use any Medicare-certified doctor can do so without financial penalty. A doctor whose pattern of practice is aberrant will be subjected to forms of education and persuasion -- where Medicare might simply deny a claim, the Funds will talk. The Funds benefits are offered on terms that most conventional health benefit programs would greet with skepticism. But the non-coercive aspects of the Funds benefits should in part be seen as an expression of how seriously the program has attempted to limit beneficiaries financial exposure and maintain their access to needed health services.

#### THE FUNDS RELATIONSHIP TO HCFA BEFORE THE CAPITATION DEMONSTRATION

To understand the capitation demonstration, it is important first to understand the relationship to HCFA that the demonstration changed. The Funds has had a long history of involvement with the Medicare program.<sup>9</sup> At the time the Medicare Act was passed in 1965, the Funds provided most physician and related services through clinics in the coal fields that it helped to sponsor, as discussed earlier. These clinics were paid on a retainer or other non-fee-for-service basis. At the inception of the Medicare program, the Funds became a Group Practice Prepayment Plan (GPPP). Subsequently, the Funds assumed its current status as a Health Care

---

<sup>9</sup> The discussion that follows in the text, concerning the relationship between the Funds and HCFA, is taken directly from the Funds Proposal, pp. 2ff.

Prepayment Plan (HCPP), the successor to the GPPP program.<sup>10</sup>

By the mid-1980s, Medicare benefits for Funds beneficiaries were administered as follows. For Part A-covered services, hospitals and other facilities submitted the bills to the Medicare fiscal intermediary for payment and, subsequently, to ALTA (the Funds' third party administrator) for payment of the per-stay deductible. For Part B-covered services, the full claim was submitted to the Funds for payment,<sup>11</sup> with only one, relatively minor exception.<sup>12</sup> Claims for all non-Medicare services (including prescription drugs, inpatient services, and vision care) were also processed by ALTA. Funds' payment rules were employed in paying claims and were applied consistently to Medicare and non-Medicare beneficiaries alike.<sup>13</sup>

This arrangement permitted coordination of the Funds wrap-around coverage with the Part B and other benefits (and also made it possible for the Funds to pay above Medicare reimbursement levels for its beneficiaries). At the same time, it greatly simplified the submission of claims for beneficiaries and providers alike: beneficiaries and providers both

---

<sup>10</sup> Along with HMOs, HCPPs are prepaid health plans that render physician and other health services to voluntarily enrolled subscribers in return for predetermined premium payments. Prepaid health plans that provide services to Medicare enrollees have several options for participation in Medicare. They may contract to deal directly with Medicare either under Section 1833 of the Social Security Act as Health Care Prepayment Plans or under Section 1876 as Health Maintenance Organizations. Section 1833 contracts cover a wide variety of plans, including some of the oldest and largest in the country. Section 1833 was written into the original Medicare legislation to enable HCPPs to participate in Medicare with minimal constraints. HCPPs are paid monthly interim payments for SMI physicians' and related services. At the end of the fiscal year, a postaudit adjustment is made based on the portion of audited physician and related costs allocated to Medicare members. Other Medicare-covered services provided by the plan (e.g., HI hospital, SNF, and home health agency) are billed on the basis of routine Medicare billing procedures. Note that Medicare regulations in 1983 changed the name of Section 1833 plans from GPPP to HCPP. Health Care Financing Administration, *Health Care Financing: Program Statistics, Medicare and Medicaid Data Book, 1986*, HCFA Publication No. 03247, September 1987.

<sup>11</sup> Funds beneficiaries are urged to have providers submit bills on their behalf, rather than paying the providers and subsequently seeking reimbursement. Historically, approximately 97 percent of all bills (dollar-weighted) are submitted by providers rather than beneficiaries (Funds Proposal, p. 3).

<sup>12</sup> The single exception is outpatient facility fee billings from hospitals, which are processed by the Part A intermediary.

<sup>13</sup> Among these rules was a requirement to pay at the 85th percentile of charges, rather than the Medicare 75th percentile. This rule, part of the NBCWA since 1978, was designed to encourage access of miners to care. It was overturned in an injunction by a federal court in 1992. We will have more to say on this event in later chapters of this report.

enjoyed the advantages of "one-stop" claims servicing.<sup>14</sup> From HCFA's point of view, this arrangement permitted an historic relationship to continue, a relationship designed to accommodate the especially serious health needs of mineworkers and their dependents.

Until the mid-1980s, this arrangement appears to have been workable. HCFA made interim monthly payments to the Funds during each year to cover the Funds' estimated costs (medical benefit and administrative). After the year was complete, the Funds and HCFA attempted to reach a final settlement. The decision rules for the final settlement were relatively straightforward in concept:

- Administrative Costs -- HCFA was to pay its fair share of administrative costs, including claims processing costs. In essence, these calculations were designed to recognize the role that the Funds/ALTA played as a substitute for a carrier.
- Medical Benefit Costs -- Payments for medical services were to be calculated by HCFA. HCFA was to use agreed-upon sampling methodologies to estimate the aggregate amounts that would have been paid had the bills been submitted to the regular Part B carrier. The percentage difference between this amount and the Funds' actual costs was referred to as the "UCR adjustment." In addition to the UCR adjustment, the Medicare coinsurance and deductibles were estimated and subtracted from the amounts paid by the Funds.

In the mid-1980s, the application of these rules became difficult, in the sense that HCFA and the Funds could not reach a settlement of the annual cost issues. This dispute revolved around differing interpretations of what the reasonable level of reimbursement should be. The Funds maintained that Medicare prevailing charges were the appropriate basis for estimating Medicare's liability, a position generally in keeping with the methodology in use prior to 1985. HCFA disagreed, largely because Medicare only infrequently paid prevailing charges on fee-for-service claims. Data were now available that had not been available before 1985, and these data could

---

<sup>14</sup> For example, a provider simply submits the claim to ALTA, awaits payment, and pursues any disputes over payment with that one source. By comparison, for ordinary Part B patients, the provider must: a) submit the claim to the Medicare carrier; b) await payment and the Explanation of Benefit from the carrier; then c) submit remaining balances to the beneficiary and other secondary payers and await payment again.

be used to establish what the Part B charges would have been with much more precision.<sup>15</sup> The merits of this debate are not critical to us -- the important point is that the two sides engaged in years of discussion without resolving the dispute. Finally, in 1990, HCFA and the Funds agreed to resolve the dispute by compromising their differences on the outstanding years' cost reports and by making a major change in the entire basis of reimbursement for three years. This change is described in the next section.

## THE CAPITATION DEMONSTRATION

Acting under its demonstration authority, HCFA established a new capitated basis for reimbursing the Funds. The demonstration application<sup>16</sup> was submitted as part of a Memorandum of Agreement between the Funds and HCFA to settle all outstanding cost issues (issues dating back to 1985) and to establish a new agreement for reimbursing the Funds for Part B costs for a three-year period beginning July 1, 1990.

Under the agreement, the Funds was to be paid a fixed amount per member per month -- \$141.87 -- for the one-year period from July 1990 through June 1991.<sup>17</sup> This rate included \$14.71 per member per month for administrative costs and \$127.16 per member per month for medical costs. These rates were negotiated by HCFA and the Funds. For each of the two remaining years of the demonstration, these monthly payments were to be updated as follows:

---

<sup>15</sup> When HCFA mandated the use of a common procedure coding system in 1985, it became possible for the first time to make more detailed, procedure-level comparisons between the Funds' payments and Medicare's payments. These comparisons showed the Funds' payments to be higher than Medicare payments, by a greater amount than had historically been estimated. Accordingly, these comparisons suggested (and HCFA argued) that the UCR adjustment should be larger than it ordinarily had been in the past. The HCFA-Funds differences are summarized in HCFA, Office of Prepaid Health Care, "UMWA Cost Report Issues: May 1990 Update."

<sup>16</sup> See Funds Proposal.

<sup>17</sup> The description of the demonstration arrangement that follows in the text is drawn from the Statement of Work of the RFP for the Evaluation.

- Medical costs were to be updated based on the increase in Medicare Part B U.S. per capita cost (USPCC) for the aged, with adjustments to reflect: 1) the geographic effects on physician payments resulting from the phase-in of the physician fee schedule in 1992, and 2) the age distribution of the Funds population.
- Administrative costs will remain fixed at \$14.71 per member per month until that amount equals 9 percent or less of total (medical plus administrative) payments. Thereafter, the administrative payment will increase according to the consumer price index for urban areas (CPI-U), but in no event will this payment exceed 9 percent of the total payment.

By this arrangement, the retrospective disputes that had come to dominate relations between HCFA and the Funds were to be eliminated: both HCFA and the Funds now would know in advance, to the penny, how much the Funds should be reimbursed to manage the Part B benefit for each beneficiary (for each year, only the exact number of beneficiaries would be uncertain). Meanwhile, from HCFA's point of view:

... the new capitated reimbursement [would] enable HCFA to encourage more coordinated care for the same costs, and reduce administrative costs compared to the HCPP model, for this unique group of individuals.<sup>18</sup>

The new arrangement thus offered important advantages to both parties and had the added advantage of wiping out an intricate and protracted dispute that protected the interests of each party but was not, in the long run, an efficient investment of time for either party if it could be avoided. The new arrangement held out the promise of ending the dispute, once and for all.

But would the new arrangement deliver as promised? A series of important issues were raised, and the answer to this question was likely to be complex. Since the new arrangement was put in place under demonstration authority, an evaluation by an independent evaluator was in any event required, so that a careful appraisal of the effects of the capitation arrangement could be anticipated. Abt Associates Inc. was selected as the evaluation contractor in June 1991, 12 months after the demonstration actually began. The next section describes Abt Associates' objectives in this evaluation.

---

<sup>18</sup> RFP for the Evaluation, Statement of Work, Section II.



## THE GOALS OF THE EVALUATION

In this evaluation, Abt Associates Inc. has been tasked by HCFA to determine whether capitation has been a cost-effective method for HCFA to provide Part B services to Funds beneficiaries. To answer that question, Abt Associates Inc. conducted three basic studies:<sup>19</sup>

1. A detailed case study describing the Funds' cost management programs and changes occurring in the organization and operation of the Funds as a result of the demonstration.
2. An analysis of changes in utilization and cost resulting from the demonstration and a determination of whether the demonstration is cost effective.
3. An assessment of changes in access to care.

The results of all these efforts are presented in this report.

It may be useful at the outset to comment on a controversial issue in health economics that can affect our expectations from the capitation demonstration and our interpretation of results in the empirical sections. Capitated health plans have incentives to reduce utilization and cost relative to fee-for-service practice. In traditional health maintenance organizations these incentives can be translated into provider-specific incentives through many price and non-price programs. The Funds does not manage a traditional HMO. Rather, the arrangement is similar to an independent practice arrangement, IPA. In an IPA, the management pays providers fee for service and has incentives to impose cost management programs to limit the fee-for-service incentives toward overutilization and excessive cost.

The controversy relates to how physicians are expected to react to changes in the level of their fees. Correctly interpreting their reactions to fee changes is particularly important for this evaluation because midway through the demonstration, the Funds was required to implement the Medicare Fee Schedule for physician services which significantly reduced fees. There are two schools of thought represented in the literature. (Summaries of the theoretical and empirical controversy among health economists can be found.<sup>20 21 22</sup>) One group of

---

<sup>19</sup> See RFP for the Evaluation, Statement of Work, Section IV.

<sup>20</sup>T McGuire and M Pauly. 1991. "Physician Response to Fee Changes with Multiple Payers." Journal of Health Economics 10:385-410.

studies based on longitudinal data has concluded that physicians whose fees are cut will increase the volume of services they provide in order to offset the lost income.<sup>23 24</sup> Another group of studies, using mostly cross sectional data find little evidence for volume offsets.<sup>25 26</sup>

We find the latter set of studies more compelling. Consequently, we generally interpret the findings of reduced utilization during the latter stages of the demonstration as a result of the much lower fees to providers with no change in out-of-pocket liability for beneficiaries. Evaluators convinced of the existence of volume offset behavior by physicians could believe that the reduced utilization we found in the last year of the demonstration could be a result of the effectiveness of the Funds' cost management program. We did not find any confirming evidence for this view in our qualitative analysis reported below.

---

<sup>21</sup>R Feldman and F Sloan. 1988. "Competition Among Physicians Revisited." Journal of Health Politics, Policy and Law 13(2):239-261.

<sup>22</sup>T Rice and R LaBelle. 1989. "Do Physicians Induce Demand for Medical Services?" Journal of Health Politics, Policy and Law 14(3):587-601.

<sup>23</sup>S. Christenson, 1992, "Volume Responses to Exogenous Changes in Medicare's Payment Policies" Health Services Research 27 (1):65-79.

<sup>24</sup>C. Hogan, 1993, "Volume Response to the Medicare Over-valued Procedure Fee Cuts. Working Paper, Physician Payment Review Commission. and Physician Payment Review Commission 1993 Annual Report to Congress.

<sup>25</sup>J Holahan, A Dor, and S Zuckerman. 1990 "Understanding the Recent Growth in Medicare Physician Expenditures." Journal of the American Medical Association 263(12):1658-1661.

<sup>26</sup>J Escarce 1993. "Effects of the Relative Fee Structure on the Use of Surgical Operations." Health Services Research 28(4):479-502.

## **2.0 ADMINISTRATIVE STRUCTURE OF THE FUNDS' HEALTH PROGRAMS**

This chapter describes the organizational structure of the Funds and the procedures it employed to administer its health benefit programs over the three year period of the demonstration. Sections 2.1 and 2.2 describe respectively the roles played by the Funds' central and field service offices (FSOs) in health program administration. Section 2.3 describes the cost management programs of the Funds that impact its administration of the Medicare Part B program. Section 2.4 discusses the activities performed by ALTA Health Strategies Inc. (ALTA) to support the Funds' health benefit administration.

### **CENTRAL OFFICE ADMINISTRATIVE STRUCTURE AND RESPONSIBILITIES**

The administrative structure of the Funds consists of a central office in Washington, D.C. (with a staff of about 240) and eight Field Service Offices (FSOs) in the coal field areas (with a combined staff of about 130). About 40 staff in Washington and another 100 in the FSOs work primarily in administering the health benefit programs of the Funds; the remaining staff administer the retirement programs of the Funds. Central office staff perform the following functions:

- overall program management,
- coordination with the Health Care Financing Administration (HCFA) for the Medicare program and with the Department of Labor (DOL) for the Black Lung program,
- development of health care policy and coverage guidelines,
- health research and program evaluation,
- financial management,
- development of beneficiary relations and educational programs, and
- management of the claims processing and cost containment functions performed by ALTA Health Strategies, Inc. (ALTA), the Funds' third-party administrator.

Field Service Office staff are responsible for beneficiary and provider relations, beneficiary education, general inquiry resolution, beneficiary eligibility determinations and enrollment, and coordination between the Funds and both providers and beneficiaries.

Exhibit 2.1 contains an organizational chart of the Funds' central office administrative structure. Overseeing all Funds' activities is the five-member Board of Trustees. According to interviews with Funds officials, the trustees are actively involved in Funds' affairs. Although the Board meets formally as a group only one day each month, most trustees are in the Washington office two or more days each week, since they are all retired and reside in the Metropolitan D.C. area.

Reporting directly to the Board of Trustees is the Executive Director of the Funds.

Five directors with responsibility for the following areas report to the Executive Director:

- General Counsel
- Treasury and Finance
- Administration and Personnel
- Operations
- Research and Analysis

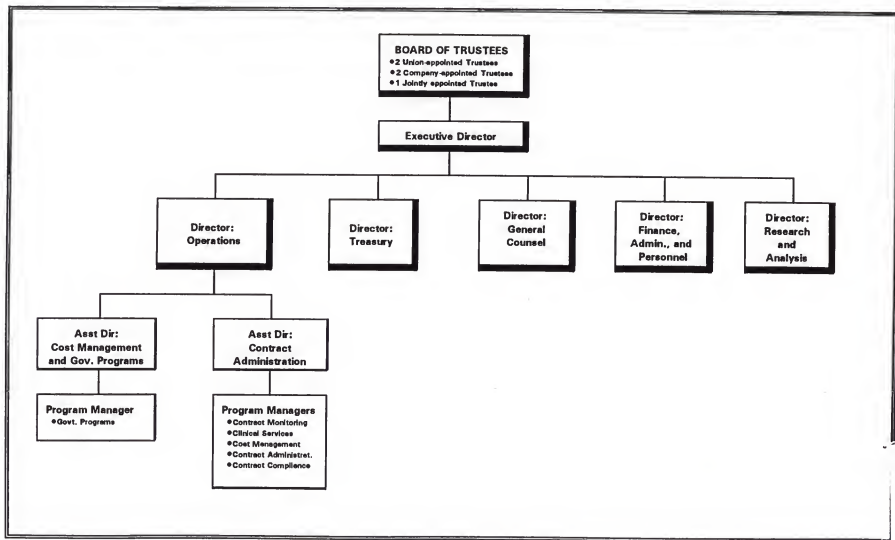
During the fall of 1991 Abt Associates' project staff performed a case study of the Funds' central office administrative operation. The study consisted of a series of focused interviews with the Directors of Operations and Research and Analysis (the two areas most involved in the day-to-day operations of the health benefits programs of the Funds). The remainder of this description of the Funds' central office operations will be devoted primarily to a discussion of the administrative structure and responsibilities of these two areas.

#### **OFFICE OF THE DIRECTOR OF OPERATIONS**

The Director of Operations has direct oversight responsibility for the operational aspects of all the Funds' health benefit programs. The Funds groups its health benefit programs into three general service categories based primarily on the different provider-specific claims it processes. The three categories are medical, drug, and vision.

- The medical category includes all physicians and suppliers claims for the Medicare Part B program (for all Part B eligible beneficiaries) and for Funds beneficiaries not enrolled in Part B, plus all claims from hospitals

Exhibit 2.1  
ORGANIZATION CHART FOR THE  
UMWA HEALTH AND RETIREMENT FUNDS



(for inpatient and outpatient services) and from skilled nursing facilities and home health agencies (for Funds beneficiaries who have exhausted their Medicare Part A benefits or those not eligible for Part A benefits) and those deductible, copayment, and other portions of Medicare claims which are covered by the Funds' Medicare supplemental or wrap-around benefit program. Also included in the medical category are claims for Funds beneficiaries who are eligible for Black Lung benefits through the Department of Labor.

- The drug category consists of claims from pharmacies for generic and brand name prescription drugs for Funds beneficiaries.
- The vision category includes claims from ophthalmologists, optometrists and opticians for visual exams and for corrective lenses and frames.

Reporting to the Director of Operations are the following positions:

- Assistant Director of Cost Management and Government Programs.
- Assistant Director of Operations for Contract Administration.

The Assistant Director of Cost Management and Government Programs has day-to-day responsibility for monitoring the operational integrity of all the Funds' cost management programs and for on-going liaison with HCFA and the DOL in conjunction with the Funds' administration of the Medicare Part B and Black Lung programs. A Manager of Government Programs assists in the liaison activities with these government entities.

The contract administration area is responsible for monitoring the quality and integrity of the claims processing and cost management functions performed by ALTA. Five managers in contract administration report to the Assistant Director and have the following responsibilities:

- **Program Manager - Contract Monitoring.** Responsible for the Quality Control Unit and on-going monitoring of the claims processing functions at ALTA. Additionally, has responsibility for oversight of Provider File Maintenance, Special Processing, and Recoupment and Adjustment activities of ALTA.
- **Program Manager - Clinical Services.** Responsible for the Funds' health care quality control programs and the coordination of health policy activities. Additionally, reviews the utilization review, quality of care, and associated clinical programs for appropriate application of program

guidelines and evaluates the overall effectiveness of each program. These programs include the outpatient, inpatient, and cataract precertification program, medical utilization review, model treatment, and professional review activities.

- **Program Manager - Cost Management.** Responsible for managing the various cost management programs not directly tied to claims processing. These programs include the Cooperating Pharmacy Program, Cooperating Vendor Program, Select Surgeon Program, the administration of Medical Services Agreements, and the Cooperating Ophthalmology Program. Additionally, the Program Manager is responsible for the administration of the Hospital Audit Program and the continued monitoring of Funds' administrative payments to ALTA.
- **Program Manager - Contract Administration.** Responsible for managing the Funds' pharmacy programs, which include Drug Utilization Review, ProDUR, Pharmacy Audit, and the FNAC pharmacy reimbursement program. Additionally, has responsibility for oversight of the Case Management, Third Party Liability, and Qualified Benefits Programs.
- **Program Manager - Contract Compliance.** Responsible for managing selected review of programs and processes relating to ALTA's administration of the claims processing system and the cost management programs. Assures the effectiveness of existing programs and processing procedures as well as the effectiveness of the oversight functions performed by the Funds' managers. Additionally, the Program Manager is responsible for the oversight of the Hold Harmless Program, Coordination of Benefits, the Provider and Fee Inquiry Units, and the system reports generated by ALTA.

The Assistant Director, in addition to responsibility for oversight of the above activities, is also responsible for ALTA's system development and new program implementation projects.

Quality Assurance is a full time activity in Contract Administration. Every report generated by ALTA can trigger a series of review activities when an anomaly is discovered. Similarly, the claims processing activities and the activities of the cost management programs are reviewed on an almost daily basis and any incongruous data or unusual occurrences are thoroughly researched and resolved.

## OFFICE OF THE DIRECTOR OF RESEARCH AND ANALYSIS

The main emphasis of the Research and Analysis area since 1990 was to automate data systems and financial planning and not in developing and proposing new cost management programs. Through 1993, almost all new cost management programs were developed by ALTA; the research area and other areas of the Funds has simply monitored and tracked the progress of those programs approved for implementation.

In-depth interviews with Funds' officials and staff during the fall of 1991 elicited a consistent observation: the capitation demonstration had no tangible impact on the Funds' administrative structure or its mode of operations. In fact, questions concerning the capitation arrangement frequently resulted in reminders from these officials that, unlike HCFA's other capitated contractors, the Funds is not an HMO and should not be expected to follow the modus operandi of these plans. No changes were made in the organizational structure of the Funds as a result of the demonstration, nor could we identify any instances where the responsibilities of staff were redefined or redeployed to meet the particular demands (or to take advantage of the new incentives) of the new reimbursement arrangement with HCFA. In terms of the expansion of existing cost management programs and the design and implementation of new programs, Funds' officials indicated these efforts had been ongoing for a number of years and would have occurred regardless of HCFA's method of payment to the Funds. These officials could cite no existing or planned cost management program that would not have been implemented if the Funds were still under the former cost reimbursement arrangement with HCFA.

Although the demonstration appears to have made no discernible impact on either the scope or direction of Funds health programs, it did have an important impact on the Funds' ability to manage its own fiscal affairs. A number of officials cited their enhanced ability to predict and plan for the monthly revenue income from HCFA in the short-term, and to avoid the time consuming and costly annual cost settlement process in the long-term, as positive impacts of the demonstration. This result is important for an organization like the Funds which has had a long history of significant revenue shortfalls. Moreover, the predictability of the financial arrangement was one of the more immediate benefits of the capitation arrangement from the standpoint of HCFA as well. Thus, while the demonstration has not concretely affected the organization of the Funds or the direction of Funds' programs, it has had a significant impact



on the Funds' ability to manage its fiscal affairs and has avoided wasteful disputes with HCFA. In other words, the demonstration does not appear to have provoked or induced efficiencies, as such, but it has brought a useful stability and predictability to Funds-HCFA financial arrangements.

#### FIELD SERVICE OFFICE LOCATIONS AND RESPONSIBILITIES

The Funds operates eight Field Service Offices (FSOs) with a combined staff of about 130, most of whom are involved in the health benefit programs which it administers. The FSOs are concentrated in the coal field areas of Appalachia where most of its retirees reside. The FSOs are located in the following areas:

- Allen, AL
- Beckley, WV
- Big Stone Gap, VA
- Evansville, IN
- Johnstown, PA
- Madison, KY
- Morgantown, WV
- Wheeling, WV

The field offices are responsible for handing all inquiries from Funds' beneficiaries, whether related to specific health care claims, or to their health and retirement benefits in general. The FSOs in Big Stone Gap, VA, and Evansville, IN are responsible for all beneficiaries in the South and West, respectively. The other six offices are responsible for beneficiaries in their more immediate geographic areas. In addition to beneficiary inquiries, the FSOs also perform the following functions:

- beneficiary eligibility determinations,
- beneficiary education,
- provider relations, and
- coordination between the Funds and both providers and beneficiaries.

Inquiries from providers about specific claims submitted to the Funds are not handled by the FSOs. Providers must call or write the Funds' claims processing contractor, ALTA, at its Pittsburgh area office to have such inquiries resolved.

As part of our qualitative evaluation of the Funds, Abt case study staff conducted a site visit to the Funds' FSO in Morgantown, WV during the winter of 1992. A summary of the major roles the FSOs play in assisting beneficiaries and in provider relations follows.

#### **BENEFICIARY-RELATED ACTIVITIES**

One of the major roles of the FSO is to assist beneficiaries in a variety of different ways. Beneficiaries apply for their retirement benefits through the FSO; and the FSO is a continuing source of assistance thereafter. The range of assistance the FSO provides is diverse, but readily characterized. The FSO is an authority whom beneficiaries consult to resolve questions about the terms of their coverage. According to the FSO, the "most frequent" beneficiary inquiries concern four matters: excessive fee rejections or claims for balance due; collection notices; Hold Harmless cases (where a provider is attempting to collect via an attorney or a collection agency for charges rejected because they exceeded the Funds fee limit or were determined to be medically unnecessary); and inquiries concerning the payment status of recent claims.

One of the key parts of the FSO's role in assisting beneficiaries is to intervene in and resolve disputes with providers. This work of the FSO is needed to give force to the Hold Harmless provision of the Funds' coverage. The Hold Harmless provision insulates beneficiaries from the vagaries of providers who do not cooperate with the Funds' payment levels or procedures.

When a provider balance bills a beneficiary and insists on payment, the FSO intervenes on the beneficiary's behalf. To coerce beneficiaries into paying the money, providers and collection agencies often insist that the beneficiary is the party owing the money. That claim is technically true. However, the technical truth is superseded by the practical fact that the Funds (using the FSO and ALTA) will represent the beneficiary through negotiations and any litigation, and will pay any judgment or settlement. In other words, Hold Harmless in practice means that the Funds assumes the liability for the beneficiary. Providers and collection

agencies in the coal fields know that; and in most cases, they deal with the FSO and issues are resolved without litigation.

In the abstract, it is difficult to understand why providers are so willing to cooperate with the Funds, on Hold Harmless cases (or, for that matter, on any Funds program that would reduce fees or utilization). The key reason for the difficulty is that the Funds cannot use material incentives or penalties to encourage or compel a change in providers. Why do providers care about good relations with the FSO and the Funds, when the beneficiary is not going to be directly prohibited or penalized if he or she continues to use a particular provider? The answer lies in certain important incentives the provider has to work with the FSO to reach a cooperative settlement:

- Notwithstanding the absence of penalties or material incentives for beneficiaries, the Funds may still be able to channel patients to, or away from, particular providers -- a power that ultimately rests on the solidarity of the beneficiaries with the Funds. While it doubtless varies from area to area, the solidarity of beneficiaries may be considerable as a rule, and the channeling power may accordingly be non-trivial.
- Some providers share in a sense of community with the coal miners they treat and are willing to cooperate out of that sense. For example, some doctors and pharmacists are the sons and daughters of coal miners, and that predisposes them to work with the Funds.
- Failure to cooperate can slow payment for all future claims -- e.g., all future claims may be pended for focused review and audit -- and that may be more costly than a proposed settlement of current claims.
- The Funds is one of the few solvent payers in the West Virginia coal fields, historically liked by providers. West Virginia Blue Cross/Blue Shield went into receivership. The public employees plan is said to be underfunded. Medicaid has never been liked by physicians: it pays slowly, at reimbursement levels that are among the lowest of any payer. That leaves Medicare and the Funds as the most dependable large payers in the West Virginia coal fields, and the Funds has always been a relatively generous and prompt payer. While the Funds' cash crunch of the past two years has strained relations with providers, those relationships have historically been strong.
- In any event, the Funds is generally easier to do business with than any other payer. For Funds patients, the provider enjoys the economy of a single payer for the claim, and one-stop servicing of the claim. By comparison, for

ordinary Part B patients, the provider must: a) submit the claim to Medicare; b) await payment and the EOB from the carrier; then c) submit to the secondary payer and await payment again.

## PROVIDER-RELATED ACTIVITIES

In addition to the beneficiary activities discussed above, the FSO performs a number of provider-related activities that deserve special mention. First, the FSO has handled the negotiations on the so-called spinoff cases resulting from the Funds' delayed payments of copays and deductibles to manage its cash shortage over the past two years. These cases are different than the Hold Harmless cases discussed above; but the FSO handles them the same way: negotiating with the provider to discount the amount outstanding, using the same sources of leverage outlined above.

Second, the FSO has been the Funds' agent for enlisting providers in one of the cooperative agreements that the Funds administered with providers. In the Cooperating Medical Service Providers program, physicians (usually primary care physicians) would agree to accept the Funds regular fee. In the Select Surgeons program, the FSO would individually negotiate fees for high-volume surgical procedures. To negotiate these fees, the FSO would obtain Medicare's allowed charges, and use those levels as a base for negotiations. The FSO also ran two other programs: Cooperating Ophthalmologists and Cooperating DME Suppliers.

Formerly, these programs have been seen as a kind of PPO, joining select providers into discounted fee arrangements with the Funds. Of course, the Funds could not deny (or even penalize) beneficiaries who used other providers; but the Funds apparently has been able, working through the FSOs, to encourage beneficiary channeling to the selected or cooperating practitioners. Recently, however, these networks, such as their effects may have been, have been substantially disbanding. Select Surgeons and Cooperating Ophthalmologists have been disbanded, since the Medicare allowed charges had become lower than the Funds discounted amounts (e.g., for cataract surgery). No more Cooperating Medical Service Providers or DME Suppliers are being recruited, as the Funds is shifting to the Medicare fee schedules for DME as it has shifted for physician services.

The final area of FSO work with providers is general assistance. Providers contact the FSO for non-claims-related issues, such as eligibility, coverage, and administrative issues.

The need for that work continues.

#### **COST MANAGEMENT PROGRAMS OF THE FUNDS**

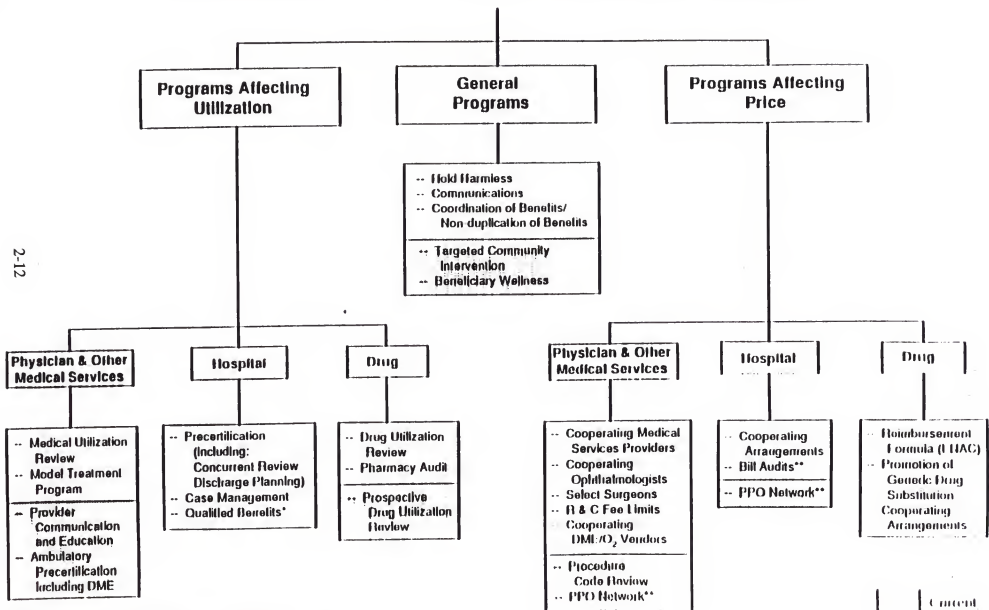
The Funds' health benefit programs are designed to provide beneficiaries with access to high quality health care with minimal out-of-pocket expenses and no restrictions on their choice of providers. They are also designed to provide more or less one-stop-shopping to beneficiaries who are also covered by other programs, including Medicare Part B and DOL's Black Lung program. The Funds has contracts with both HCFA and DOL to process and pay Medicare Part B and Black Lung claims for its own beneficiaries. For those beneficiaries with Medicare or Black Lung coverage, employer contributions are supposed to finance supplementary benefits. For beneficiaries without other primary coverage, employers fund the total package of health benefits.

The 1988 NBCWA obligates the Funds and its Trustees to provide health benefit to Funds beneficiaries and to design, implement and administer extensive programs to contain the costs and control the use of health care services. The Medicare Capitation Demonstration Proposal developed in 1990 by the Funds described a total of 28 active or proposed cost management programs which, by various means, were designed to control either the use or cost of health care services provided to its beneficiaries. Exhibit 2.2 groups these programs into three major categories:

- General Programs (3 current, 2 proposed) -- programs that are general in application and affect both the use and cost of health care services, as well as all major types of services (hospital, physician, and prescription drugs).
- Utilization Programs (7 current, 3 proposed) -- programs that affect the utilization of health care services.
- Pricing Programs (10 current, 3 proposed) -- programs that impact the payment level(s) of health care services.

The Funds' Proposal further grouped all the utilization and pricing programs into three sub-categories based on the major type of provider services they impact--hospital, physician, and prescription drugs. For example, of all the utilization and pricing programs, there were 7

## CURRENT AND PROPOSED FUNDS' COST MANAGEMENT PROGRAMS



\* Also affects utilization of physician services

\*\* Also affects utilization of hospital and/or physician services

Current

Proposed

current and 4 proposed for physician services, 5 current and 1 proposed for hospital services, and 5 current and 1 proposed for prescription drugs.

The number and variety of cost containment programs of the Funds together with the Part B focus and limited resources of our evaluation required Abt project staff to develop a strategy to identify and evaluate only those programs of the Funds which were likely to have observable and measurable impacts on the cost and utilization of Part B services. This strategy, together with operational and performance information from the Funds, allowed us to identify the fourteen programs described in summary form below that have the greatest potential to impact either the cost or use of Part B services or the ability of Funds' beneficiaries to access these services. The programs are listed under the same categorical headings used in Exhibit 2.2.

**A. General Programs**

- **Hold Harmless Program** - The Hold Harmless Program protects Funds' beneficiaries from providers who attempt to collect for medically unnecessary services or for charges that exceed the Funds' reasonable and customary fee limits. The Hold Harmless program does not in and of itself reduce Funds' expenses. Rather, it assures that beneficiaries are not held liable for services that are not medically necessary or for billings that are at levels that are judged to be excessive. As such Hold Harmless enables the cost management programs to be implemented in a manner that protects beneficiaries access to services covered by Medicare Part B and other Funds' health programs.
- **Coordination of Benefits/Non-Duplication of Benefits** - Because Funds' beneficiaries may be covered by other health insurance, including the Black Lung program, the Funds seeks to identify duplications in benefits in order to avoid being financially liable where another payer is primary.

**B. Program Affecting Utilization**

**B.1 Physician Services**

- **Medical Utilization Review (MUR) Program** - The MUR Program addresses the use of ambulatory services and is designed to ensure that beneficiaries receive only medically necessary and appropriate services. Providers are monitored through retrospective analysis of claims data. General reports on overall use of health care services are generated, and providers exhibiting particularly high use compared to their peers are identified. Once a provider

has been identified as having an aberrant practice pattern, educational efforts are pursued to attempt to correct that behavior.

- **Model Treatment Program (MTP)** - MTP uses medical policy edits in the claims processing system to monitor and evaluate the medical necessity and appropriateness of the services delivered to beneficiaries. MTP's focus is to educate, rather than punish, providers. Claims are screened as they are being processed, and the frequency and type of service that a physician furnishes for a diagnosed condition are analyzed. When treatment patterns are inconsistent with norms for a given diagnosis, the provider receives a letter inquiring about the treatment.
- **Provider Communication and Education**  
Through 1991, the Funds' MUR and MTP programs identified aberrant physician practice patterns and attempted to modify behavior through claims review and follow-up through correspondence. The programs were directed at a limited number of individuals that exhibit aberrant behavior. In 1991, the Funds made plans to replace these focused programs with a more broadly-based one which more effectively educates physicians about practice norms. Where appropriate, this program may be integrated with the targeted community intervention program which the Funds also planned to introduce.

The Funds would present material in an educational setting. For example, the Funds might sponsor a seminar on the clinically appropriate use of vitamin B-12 injections for the physicians in an area with an abnormally high utilization rate for this particular service. By educating the physician community about acceptable practice standards, the Funds would preclude physicians from adopting a defensive stance on their practice patterns, improving the quality of care provided to its beneficiaries, and reducing unnecessary expenditures.

- **Precertification of Ambulatory Services**

This program, which has been in existence for more than 20 years, requires that Funds' beneficiaries receive prior approval for particular ambulatory procedures, including home health care, physical and speech therapy, and ambulatory alcohol rehabilitation. The program entails assessing the necessity of a proposed ambulatory service using clinical data furnished by the attending physician.

## **B.2 Hospital Services**

- **Case Management** - The concurrent review and discharge planning process serves to identify hospitalized patients who are likely to incur high costs for



continued treatment of their condition. The Case Management Program coordinates ongoing service delivery after hospitalization to ensure the effective use of resources and continuity of care in the most appropriate setting. As such, this program impacts a number of Part B services received in the ambulatory setting.

- **Qualified Benefits** - The Qualified Benefits Program entails reviewing certain procedures, services, and equipment that require specific authorization for approval. Many of these are outpatient, and a number of these services are covered by the Medicare Part B program. The specific procedures were initially selected as part of the collective bargaining process and are incorporated in the coal wage agreements, based on their being potentially high cost and discretionary.

## C. **Programs Affecting Price**

### C.1 **Physician Services**

- **Cooperating Provider Networks** - Until the early 1990s, the Funds operated three programs involving networks of cooperating physicians for primary care, ophthalmology, and surgery. The vast majority - more than 90 percent - of these physicians were located in the major eastern coal states: West Virginia, Virginia, Pennsylvania, Ohio, Kentucky, and Tennessee.
  - **The Cooperating Medical Services Provider Program** was a network of solo practitioners, group practices, and clinics that provide primary care services to Funds' beneficiaries. The cooperating providers agreed to:
    - Provide medically appropriate services.
    - Participate in the Funds' pre-certification, concurrent review, and discharge planning programs.
    - Prescribe generic drugs when appropriate.
    - Make referrals when appropriate to medical specialists enrolled in Funds' networks.
    - Bill the Funds directly and refrain from billing beneficiaries for any amount other than applicable co-payment.
  - **The Cooperating Ophthalmology Program**, was a network of

ophthalmologists who agreed to accept the lesser of the Funds' usual fee limit for cataract removal or 90 percent of the submitted charge. Also, per-certification was required and conducted using protocols developed by the Funds. Agreements had been signed with 280 ophthalmology practices, that accounted for 64 percent of all Funds' billed charges for cataract procedures.

- The **Select Surgeons Program** was initiated in 1988 to address the high costs associated with certain frequently occurring surgical procedures (e.g., coronary bypass surgery, cholecystectomy, arthroplasties, and prostate surgery) and to assure beneficiary access to high quality surgeons. The network consisted of more than 100 surgeons and surgical groups, who accounted for some 42 percent of selected high volume surgical procedures. The Funds negotiated a fee schedule with the cooperating board-certified surgeons.
- The Funds began to de-emphasize these provider network programs in 1991 primarily because the fees negotiated with these physicians were no longer competitive with the charges then being allowed by Medicare and other major payers. It formally dissolved these networks in June 1992 when it implemented the Medicare fee screens in its claims pricing programs.
- **Reasonable and Customary Fee Limits** - The Funds annually establishes reasonable and customary fee limits for medical, surgical, laboratory and radiologic procedures. The limits were set at the 85th percentile of charges for each procedure and were national rather than regional. As a result of a Federal court order, the Funds ceased using the 85th percentile in the spring of 1992, and is now using the Medicare fee schedules to price claims.
- **Cooperating DME/O<sub>2</sub> Vendors** - In August 1985 the Funds established a network of suppliers of durable medical equipment and respiratory services who agreed to accept a fee schedule; contract terms regarding equipment quality, maintenance, and service; and the application of rental payments toward purchases. The Cooperating Vendors are disproportionately located in coal producing areas, but are present nationally, providing access to all Funds' beneficiaries.
- **Procedure Code Review Program**

This program was introduced on a pilot basis in 1991. It uses sophisticated software programs to detect three forms of miscoding: upcoding, unbundling,

or fraud. Upcoding entails billing for a more expensive service or procedure than was actually performed. For example, coding a "brief" office visit as "intermediate" yields a higher payment. Unbundling entails fragmenting the charges and is often referred to as "a la carte" billing. For example, an unbundled hysterectomy becomes an exploration of the abdomen, removal of the ovaries and fallopian tubes, and removal of scar tissue. Billing for these three procedures rather than for a hysterectomy can generate significant additional revenues. Lastly, fraud involves billing for services which were never provided. The Funds purchased a software package to operate this program in 1991 and has been gradually expanding its applications since then.

- **Radiology Self-Referral Program**

This program was introduced in 1993 as a result of studies conducted by the Funds and others which showed higher utilization rates for x-rays and other diagnostic imaging services among non-radiologists physicians who order such tests. It effectively precludes the payment of the professional component of the charge for the interpretation for such tests when they are ordered and performed by physicians not certified in radiology, cardiology, or nuclear medicine.

#### **FUNDS' SUBCONTRACTED RESPONSIBILITIES**

Prior to and throughout the period of the demonstration, the Funds contracted with a third-party administrator, ALTA Health Strategies, Inc. (ALTA), to provide claims processing and cost management program support for its health benefit programs. The relationship between the Funds and ALTA began in 1979 when the Funds contracted with ALTA's predecessor company, U.S. Administrators (USA) to process drug claims for Funds beneficiaries. In 1980, the Funds expanded ALTA's responsibilities by adding hospital, medical, and vision claims to its processing responsibilities and by making ALTA primarily responsible for developing, implementing (with Funds approval), and operating the cost management programs of the Funds. In 1990, ALTA's contract with the Funds was extended to June 1993 to ensure continuation of its services throughout the term of the Medicare B Capitation Demonstration.

During the demonstration, ALTA was responsible for processing all types of claims for Funds beneficiaries, including non-Medicare-Part-A institutional claims, Medicare Part B claims, Medicare supplementary claims (the so-called Medigap or wrap-around claims), and claims for prescription drugs and vision care. ALTA also processed claims for Funds

beneficiaries eligible for DOL Black Lung benefits.<sup>1</sup> ALTA was also responsible for developing proposals for new cost management programs and implementing and operating these programs, once they are approved by the Funds' Trustees. Other services performed by ALTA included operating the case management and hold harmless programs out of its Pittsburgh office and responding to all claims-related inquiries from providers.

The Funds closely monitored ALTA's performance of all responsibilities through: 1) reviews of all reports and other systems output from ALTA, 2) on-going and independent quality evaluation of about one percent of all claims processed by ALTA; and, 3) compliance visits to ALTA's Los Angeles claims processing site about four times a year to ensure the integrity of the claims process.

A detailed analysis of the Funds' contractual arrangements with ALTA and the findings from our operations reviews of ALTA's claims processing operations in Los Angeles and its cost management program activities in both Los Angeles and Pittsburgh can be found in the First Year Interim Report.

## FINANCIAL STATUS OF THE FUNDS<sup>2</sup>

Although the financial status of the Funds has improved significantly in recent years, throughout most of the demonstration years, the health benefit programs of the Funds have faced a severe financial crisis. As of 1990, the combined deficit of the two health benefit funds (the 1950 and 1974 Benefit Trusts) was \$114.7 million. By 1993, the deficit for both funds was expected to exceed \$300 million. Although a host of factors have contributed to this crisis, the major reasons for this shortfall are threefold:

- Decline in Funds' Revenue. The number of coal companies making contributions to the Funds has declined significantly over the last forty years. In 1950, the companies making contributions to the Funds accounted for 80 percent of the coal produced in the U.S.; by 1990, companies making contributions to the Funds accounted for 80 percent

---

<sup>1</sup>ALTA processed most claims for Funds Black Lung beneficiaries. The primary exceptions were inpatient claims and claims for DME and oxygen services and supplies, which are processed directly by the DOL.

<sup>2</sup> Most of the background material on the financial status of the Funds in this section was taken from the "Coal Commission Report" cited in an earlier footnote.

of the coal produced in the U.S.; by 1990, companies making contributions accounted for only 30 percent of national coal production.

- Increased Cost of Health Care. The cost of providing health care to retired miners and their families has increased significantly in the last ten years. Between 1979 and 1989, the total cost of health care benefits paid by the Funds has doubled from \$117.4 million to \$245.3 million.
- Increase in Orphan Retirees. There has been a steady increase in the number of orphaned retirees whose companies have either gone out of business or no longer provide health care benefits. Almost half of the 110,000 beneficiaries in the 1950 Benefit Trust are orphans, and all of the 13,500 beneficiaries in the 1974 Benefit Trust are orphans. The Funds receives no contributions from coal companies for these orphaned beneficiaries.

The recent financial problems of the Funds prompted the Secretary of Labor to establish a national commission, the Coal Commission, in 1990 to advise the Secretary on:

- The financial status and prospects of the UMWA 1950 and 1974 Pension and Benefit Trusts;
- The provision and means of delivery of health care benefits to coal industry retirees and their dependents who either currently are or formerly were represented by the UMWA; and
- Arrangements to assure the long-term financial viability of the Pension and Trust Funds.

The eleven members who served on the Commission had a wide range of expertise and represented all facets of the coal industry. They included representatives of the union, coal operators (both BCOA and non-BCOA), the private insurance industry, as well as academics, actuarial, medical and government policy experts. The Commission heard testimony and reviewed all aspects of the past and present administrative and financial status of the Funds over a nine-month period. In its November 1990 report to the Secretary, the Commission concluded that collective bargaining alone could not resolve the problems of delivering promised health

care benefits to retirees and developed the following recommendations for ensuring the long-term financial stability of the Funds:

- Imposition of a statutory obligation to contribute to the Funds on current and past signatories to the NBCWA;
- Establishing mechanisms to prevent future dumping of retiree health care obligations on the Funds;
- Enactment of statutory authority for the parties to use the excess pension assets (approximately \$237 million according to actuarial estimates) to reduce existing health benefit program deficits; and
- Implementation of managed care and cost containment programs to reduce costs without a reduction in benefits.

The principal point on which Commission members could not reach agreement was whether the entire coal industry (both BCOA and non-BCOA) or only the signatory coal companies should contribute to the resolution of the problem of orphan retirees. Many commissioners supported the enactment of a small health care fee on current and former signatories, as well as on other coal producers, to help pay for health benefits of retirees who have no company to provide such benefits. Others believed that only current and former signatory companies should be required to make such a contribution.

On the administrative level, the severe financial problems in recent years lead the Funds to delay payment to providers for the supplemental portion of Medicare claims (covering the Medicare Part A and Part B deductibles and coinsurance amounts and the differences between Funds' allowed charge levels and those of Medicare) beginning in November 1990, according to Funds officials. The Funds continued these payment delays through the early spring of 1992, when it began a gradual process of releasing payments for these outstanding balances, with payment priority going to the oldest claims delays. Over the eighteen odd months that these payment delays had occurred, the Funds used its leverage as a major third-party payer in the coal field area to encourage providers to negotiate significant discounts (reportedly averaging about 25 percent) of the balances owed them. Providers who agreed to such discounts over the period of these delays were then issued a check by the Funds for the total amount of the outstanding balances owed them, minus the discount amount. Providers who did not agree

to discount arrangements with the Funds over this period received no payments for the supplemental portion of their Medicare claims until the Funds began to gradually reduce its backlog of delayed claims, beginning in April 1992. The Funds eliminated the entire backlog of suspended claims payments in November 1992. Meanwhile, due to a continuing shortfall in funds, it slowed down, but did not cease, its payments to pharmacies for prescription drugs.

Both HCFA and Abt Associates project staff were quite concerned about the impact of these suspensions on physicians and other providers' willingness to see and treat Funds' Medicare beneficiaries. In response to these and other concerns, Abt case study staff met with small groups of providers and beneficiaries in the Funds' Morgantown Field Service Office area in early August 1992. In the interviews with both providers and beneficiaries, we found no evidence that these suspensions had adversely effected the ability of beneficiaries to obtain needed care, although one physician believed that some beneficiaries had delayed seeking needed services because of the current financial problems of other Funds. However, no physician indicated an unwillingness to treat Funds' beneficiaries because of the Funds' payment delays, nor did any beneficiary indicate any problem in obtaining needed care from physicians or other Part B providers.

While the Executive Branch was investigating the problems of the Funds and recommending solutions by means of the Coal Commission and the Funds itself was delaying payment on selected claims in 1991 and 1992, activity was also taking place in the judicial branch of government. In 1992, the Funds brought legal action against a number of employers that were not then signatory but were signatory to prior NBCWAs, to enforce the obligations of the companies to continue to contribute to the Funds. These suits were known as the Evergreen Cases. The Funds also sued the BCOA to increase the rate of contribution to the 1974 Benefit Trust in order to effectuate the guarantee of benefits contained in the collective bargaining agreement. These were known as the Guarantee Cases. In addition the union (UMWA), individual retirees, and the BCOA filed numerous lawsuits and countersuits against various parties involved in these disputes.

In a case which was to have a major impact on the financial health of the Funds and also on the cost effectiveness of the rates HCFA was paying the Funds in the capitation demonstration, certain beneficiaries of the 1950 and 1974 Trusts, on behalf of all beneficiaries,

sued the Funds in February 1992 alleging its decision to suspend the payment of health care benefits would be a breach of its fiduciary responsibilities. The UMWA soon intervened as a plaintiff in the action, and, after a hearing in March 1992, the plaintiffs named the BCOA as a defendant and moved for an order requiring the BCOA to increase the rate of funding to the trusts. On April 2, 1992 the U.S. District Court for the Western District of Virginia ordered the following actions of the Funds and the BCOA:

- the Funds was enjoined from suspending the payment of health benefits of beneficiaries of the two health funds;
- the BCOA was directed to comply with the terms of the NBCWA of 1988, by increasing its contributions to the Funds to \$3.07 per hour for the 1950 Benefit Trust, and to \$0.60 per hour for the 1974 Benefit Trust;
- The Funds was directed to begin paying no more than the Medicare allowed charge as opposed to the 85th percentile level mandated by the NBCWA of 1988 for all unpaid bills (i.e., suspended claims) and for future bills for beneficiaries covered by Medicare Part B.

As a result of this final order of the Court, the Funds took immediate steps to approximate the Medicare Part B allowed charge payment levels for all current claims filled on behalf of Medicare beneficiaries during April and May 1992. In June 1992 it obtained copies of the Medicare fee schedules of major Part B carriers and began paying both current Medicare and delayed supplemental claims at these allowed charge levels, to fully comply with the court order.

The order by the court requiring the Funds to pay no more than the Medicare allowed charge level significantly reduced the Funds' benefit expenditure levels for Part B beneficiaries and radically changed the cost assumptions under which the capitation rates for the demonstration had been negotiated by the Funds and HCFA. Exhibit 2.3 compares the Funds' reported (and unaudited) costs for Medicare beneficiaries (on its annual cost reports) to the capitation rates HCFA was paying the Funds over the three years of the demonstration. It indicates that the Funds' reported costs for the medical portion (which is affected by allowed charge levels) decreased slightly by about 2 percent from fiscal 1991 to 1992, from \$129.91 to \$127.58 per-member per-month (PMPM), but decreased dramatically by almost 25 percent, from



**Exhibit 2.3**  
**COMPARISON OF FUNDS' REPORTED (AND UNAUDITED) COSTS TO HCFA CAPITATION PAYMENTS**  
**DURING DEMONSTRATION YEARS**

	FY1991 (July 1990 - June 1991)		FY1992 (July 1991 - June 1992)		FY1993 (July 1992 - June 1993)	
	Reported Costs	HCFA Payments	Reported Costs	HCFA Payments	Reported Costs	HCFA Payments
Medical Costs (PMPM)*	\$129.91	\$127.16	\$127.58	\$141.40	\$95.93	\$162.04
Administrative costs (PMPM)	20.97	14.71	21.81	14.71	24.61	15.18
Total Medical and Admin. Costs (PMPM)	\$150.88	\$141.87	\$149.39	\$156.11	\$120.54	\$177.22
Number of Medicare Member-Months	1,218,085	1,218,085	1,164,357	1,164,357	1,114,594	1,114,594
Total Reported Costs/HCFA Capitation Payments**	\$183,782,508	\$172,271,944	\$173,948,644	\$182,290,724	\$134,354,397	\$198,292,710
Annual Profit/(Loss) to Funds	(\$11,510,564)		\$8,342,080		\$63,938,313	

\* Per Member Per Month

\*\* HCFA capitation payments may reflect adjustments from prior years.

\$127.58 to \$95.93 from fiscal 1992 to 1993, after the Funds began paying claims at the Medicare allowed charge levels in June 1992. Meanwhile, HCFA's payment rates to the Funds continued to climb over this period by terms of the original agreement. The overall effect was that the Funds went from incurring a loss of over \$11 million in fiscal 1991, to annual profits of over \$8 million in fiscal 1992 and a huge \$63 million profit in fiscal 1993. Exhibit 2.4 compares the Funds' audited costs to HCFA capitation payments for the first two years of the demonstration. Although some of these cost reductions were probably due to other factors, such as the progressive cumulative impact of its expanded cost management programs, it is difficult not to point to the use of the Medicare fee screens as the principal cause of the significantly lower costs in fiscal 1993.

The cost performance (at least in terms of "reported" costs) of the Funds over the initial three years of the demonstration illustrates how totally unforeseeable downstream events can cause the good faith endeavors of two parties to an agreement to become obsolete. In retrospect, it also points out that the rates HCFA negotiated with the Funds were quite generous since the "UCR factor" (the difference between the Funds' 85 percentile charge level and the Medicare charge level) was supposed to have been included in these rates.

Meanwhile, legislation sponsored by Senator Jay Rockefeller (D-WV) that was included in an Energy Bill passed by Congress in late 1992, would appear to resolve the current financial problems of the Funds. The three main provisions of the legislation will result in the following actions:

- provide statutory authority for the Funds to use its surplus monetary assets in the pension trust to reduce the deficits in the health funds;
- require all current and past signatories to the NBCWAs to meet their obligations to the Funds; and
- direct money from a special fund established to reclaim abandoned coal mining sites to the Funds, to eliminate any remaining health benefit deficit after the first two actions have been taken.

The legislation also requires the Funds to pursue a managed care approach to controlling the costs and intensity of health services by its beneficiaries.

**Exhibit 2.4**  
**COMPARISON OF FUNDS' AUDITED COSTS TO HCFA CAPITATION PAYMENTS FOR**  
**FIRST TWO DEMONSTRATION YEARS**

	FY1991 (July 1990 - June 1991)		FY1992 (July 1991 - June 1992)	
	Revised Costs	HCFA Payments	Revised Costs	HCFA Payments
Medical Costs (PMPM)*	\$118.89	\$127.16	\$113.37	\$141.40
Administrative costs (PMPM)	20.97	14.71	21.75	14.71
Total Medical and Admin. Costs (PMPM)	\$139.86	\$141.87	\$135.12	\$156.11
Number of Medicare Member-Months	1,212,626	1,212,626	1,168,156	1,168,156
Total Audited Costs/HCFA Capitation Payments**	\$169,600,306	\$172,271,944	\$157,849,544	\$182,290,724
Annual Profit/(Loss) to Funds	\$2,671,638		\$24,441,180	

\* Per Member Per Month

\*\* HCFA capitation payments may reflect adjustments from prior years.

### 3.0 EVALUATION DESIGN AND DATA SOURCES FOR THE QUANTITATIVE ANALYSIS

#### EVALUATION DESIGN

This section summarizes the design for the quantitative evaluation of the capitation demonstration. Additional detail on the design issues can be found in the Evaluation Design Report.<sup>1</sup> The demonstration was not structured as an experiment with either a randomized design or a natural control group. The mine workers' health status was recognized as sufficiently different from other groups to preclude selection of a reasonable control group from the general Medicare population. The Funds female beneficiaries, however, were thought to be comparable and the selection of suitable comparison groups is discussed below. With the exception of the female comparison group, the evaluation was to rely on analysis of data from before and after the start of the demonstration. This kind of pre- and post-demonstration comparison is particularly vulnerable to other unrelated factors that could change any of the outcomes of interest during the demonstration. Thus, technological changes that affected practice patterns during the demonstration period could be misinterpreted as effects of capitation. More importantly, external policy interventions that were coincident with the demonstration could easily affect outcomes of interest. There was a major policy intervention that overlay the demonstration. In April 1992, as a result of a federal district court order, the Funds began to reimburse physicians following the Medicare Fee Schedule payment amounts, not the previous usual, customary, prevailing charge methodology. Thus, data for the two fiscal years affected by the new physician pricing strategy may contain effects of either the demonstration or the new physician reimbursement methods or some unknown combination of the two. As a result of the design of the demonstration and its evaluation, our ability to draw conclusions about the effects of capitation from the pre- and post-demonstration data is quite limited.

There were three additional comparisons that were central to the evaluation. Capitation sets up some financial incentives to limit utilization. To determine if particularly vulnerable populations received too little health care services, the Evaluation Design Report included comparisons of male beneficiaries who are eligible for Department of Labor (DOL) Black Lung

---

<sup>1</sup> W.D. Marder, et al., Evaluation Design Report, report submitted by Abt Associates Inc., pursuant to Contract No. HCFA 500-87-0030 (11), dated December 2, 1992.

benefits with other male Funds beneficiaries. Those with Black Lung benefits were presumed sicker and more vulnerable than their colleagues who were not eligible. We compare utilization and costs for these two populations to determine if any differential was created during the demonstration.

The second comparison included in the evaluation, is between UMWA Funds female beneficiaries and a sample of women eligible for Part B services and drawn from similar geographic areas as UMWA beneficiaries. For each of the six years of the study, we proposed to compare utilization and cost for these two study populations. While at the outset it appeared that the comparison group might provide a reasonable control population (that is, the cost and utilization of the comparison group might reflect what the UMWA Funds women would have received in the absence of the capitation demonstration), we found that the Funds beneficiaries were older and sicker than the women selected from the general Medicare population. Thus, the same problem that precluded careful comparisons for male mine workers and other male beneficiaries also existed for the mine workers' spouses, the female UMWA beneficiaries. The results are reported below, but many of the differences between the two groups of women are attributable to differences unrelated to health care financing.

The final comparison focused on those UMWA Funds beneficiaries who were admitted to the hospital for an acute myocardial infarction (AMI). The institutional bills and physician and supplier claims files were summarized into episodes of care. The pre- and post-demonstration patterns of care displayed in these episodes were compared. Of course, changes over time could be the result of either the demonstration or other, coincident changes affecting the treatment of AMI.

The evaluation was planned to include two other comparisons. The Funds had a participating physician program and it seemed desirable to compare cost and utilization of those patients treated by participating physicians with cost and utilization statistics for beneficiaries treated by non-participating physicians. Unfortunately, it is not possible to identify participating physicians in the ALTA claims files and the associated computer-readable data on providers of service. Consequently, the comparison described in the proposed evaluation was abandoned.

A second planned comparison was significantly modified and not discussed in detail in the remaining sections of this report. At the outset of the evaluation we planned to compare patterns of care in areas where Funds beneficiaries constituted a large proportion of the population with patterns observed in locales where Funds' cost management programs were likely to be a small consideration for the providers of service. The detailed tables in the appendix volume to this report implement this strategy to a limited extent. The detailed tabulations separate the metropolitan and non-metropolitan areas of West Virginia, Pennsylvania, Kentucky, Ohio, and Virginia and compare these findings with metropolitan and non-metropolitan areas of all other states. In general, the results for these comparisons provide considerable evidence to nationwide effects of the demonstration and the imposition of the Medicare Fee Schedule for physician services. Given the very limited interest in results from these geographic comparisons, we do not discuss them in the following sections.

The remainder of this chapter reports on the data sources used in the evaluation and the reporting conventions chosen for this report.

## DATA SOURCES

The quantitative analyses of the Funds capitation demonstration presented in this report are based on data about the health care experiences of UMWA Medicare beneficiaries and those of a "comparison" group of female non-UMWA Medicare beneficiaries. The data cover the six-year period from July 1, 1987 through June 30, 1993, to provide a set of measures of health care cost and utilization. The primary focus is on annual utilization of individual beneficiaries during the six UMWA-HRF fiscal year periods (FY 1988-1993) starting July 1 and ending June 30. This provides a three-year pre-demonstration period (FY 1988-1990) and the three-year period of the demonstration (FY 1991-1993). The analysis includes health care services provided by: physicians and medical suppliers, covered under the Medicare Supplemental Medical Insurance program (Part B); institutional providers (hospitals, skilled nursing facilities, home health agencies, and hospices), covered under the Medicare Hospital Insurance (Part A) program; hospital outpatient departments, covered under Medicare Part B; and physicians, suppliers, and hospitals, covered under the Department of Labor (DOL) Federal Black Lung program.

This section discusses the construction of the two analytic files used in the quantitative evaluation: the Individual Beneficiary Annual Data (IBAD) file and the Episodes of Care for Acute Myocardial Infarction (ECAMI) file. The IBAD file measures Medicare entitlement and health care utilization at the individual beneficiary level on an annual, fiscal year basis. The ECAMI files measures health care utilization during an episode centered around an inpatient admission for an AMI. Data were collected from three main sources to build these files: the Funds claims processor ALTA Health Strategies, the Health Care Financing Administration (HCFA), and the DOL Federal Black Lung Program. The following sections describe in more detail the data sources, the structure and contents of the analytic files, and the development of the beneficiary samples.

#### **SOURCE DATA FILES**

Construction of the analytic files for the evaluation involved the use of data files from three main sources: ALTA Health Strategies, the claims processor for the Funds; the Health Care Financing Administration's Decision Support System; and the Department of Labor's Federal Black Lung Benefits Project.

#### **ALTA HEALTH STRATEGIES FILES**

UMWA-HRF Eligibility File. This file is maintained by ALTA and contains a record for each Funds beneficiary. The file includes Funds' eligibility information, as well as demographic and residence information. The December 1991 and November 1993 versions of the eligibility file were obtained from ALTA and used as the sources for Social Security Numbers, Member ID Numbers, Medicare Health Insurance Claim Numbers (HICN), and Black Lung Eligibility Dates for Funds beneficiaries.

Claims History File. This file contains records of all (non-drug) claims processed by ALTA for Funds beneficiaries. Claims with dates of service in calendar years 1987 through 1993 were obtained from ALTA, which included all claims processed through November 1993. This file was used to compute the allowed charges and payments for Medicare physician/supplier covered services and for part of the Black Lung covered services of Funds beneficiaries.

Procedure Code File. This file contains records of the procedure codes used by ALTA and text descriptions of those procedures. The file was used to identify oxygen services and to review the coding system used by ALTA.

## HCFA FILES

Health Insurance Skeleton Eligibility Write-off (HISKEW) File. The HISKEW file is an extract from the main HCFA Medicare Enrollment Database. The December 1991 and September 1993 versions of the HISKEW file were obtained for Funds beneficiaries and for female beneficiaries in the Medicare 5% sample. These files were used to determine the Medicare entitlement of Funds beneficiaries and to select the comparison group. They are also the source of Medicare enrollment, demographic and residence data in the analytic files.

BMAD IV Beneficiary Files. These files contain the Medicare Part B physician and supplier claims for beneficiaries in the Medicare 5% sample. The BMAD IV files from calendar years 1987 through 1990 were used to compute the allowed charges and Medicare reimbursements for physician/supplier services of the female comparison group during the pre-demonstration period, FY 1988-1990.

National Claims History (MANRLINE) Part B Claims File. This file contains the Medicare Part B physician and supplier claims from HCFA's National Claims History Nearline Database. Files of the Part B claims for calendar years 1991 through 1993 were used to compute the allowed charges and Medicare reimbursements for physician/supplier services of the female comparison group during the demonstration period, FY 1991-1993.

Medicare Automated Data Retrieval System (MADRS) Claims File. This file contains Part A institutional (inpatient, skilled nursing facility, home health agency, and hospice) claims and Part B hospital outpatient department claims. MADRS files for calendar years 1987 and 1988 were obtained for the UMW-ARF and comparison group beneficiaries. These claims were used to compute the Part A and Part B outpatient charge and reimbursement measures during part of the pre-demonstration period.

Standard Analytical File (SAF) Claims. These files contain Part A institutional (inpatient, skilled nursing facility, home health agency, and hospice) claims and Part B hospital outpatient department claims stored in HCFA's DSAF system. SAF claims for calendar years



1989 through 1993 were obtained for the UMWA-HRF and comparison group beneficiaries. These claims were used to compute the Part A and Part B outpatient charge and reimbursement measures during part of the pre-demonstration period and during the demonstration period.

**BMAD I Procedure Files.** These files contain summary information about submitted charges, allowed charges, and units of services from all Part B physician and supplier claims processed by Medicare Part B carriers. The BMAD I files from calendar years 1987 through 1992 were used to compute carrier average allowed charges for revaluation of the ALTA claims.

**Medicare Fee Schedule Resource Based Relative Value Scale (RBRVS) File.** The fee schedule RBRVS file contains the 1992 relative values for work, practice expenses, and malpractice expenses that are currently used to price and pay claims for Part B physician services. The RBRVS work values were used to revalue the physician services in the ALTA claims and the comparison group Part B claims.

#### **DEPARTMENT OF LABOR FILES**

**DOL Federal Black Lung Claims History File.** This file contains claims of Black Lung-eligible Funds beneficiaries that were processed and paid by the Federal Black Lung Project. DOL supplied files of claims for dates of service in calendar years 1987 through 1993 in response to "finder" files of Social Security Numbers of Funds beneficiaries with Black Lung eligibility. The physician and supplier, inpatient and hospital outpatient department claims in this file were used to compute the charges and payments for services covered under the Black Lung program.

#### **OTHER SOURCES**

**Area Resource File (ARF).** The Area Resource File contains annual historical, county-level population, income, and health care-related statistics. The ARF is produced on a semi-annual basis by the DHHS Office of Data Analysis and Management-Bureau of Health Professions (ODAM-BHPr). These data were used to describe the characteristics of the counties in which the UMWA-HRF and comparison group beneficiaries lived. County-level variables such as population density, per capita income, number of hospitals, number of physicians, etc. were used as covariates in the multivariate analysis.

## **THE INDIVIDUAL BENEFICIARY ANNUAL DATA (IBAD) ANALYTIC FILE**

The Individual Beneficiary Annual Data (IBAD) Analytic File summarizes the utilization of health care services provided to Funds and comparison group beneficiaries. The unit of observation in the IBAD file is the beneficiary-fiscal year. Observations are present for a beneficiary for each fiscal year in which the beneficiary had Medicare Part B entitlement, regardless of whether he/she used any services during that year. The IBAD file contains two basic types of variables: beneficiary characteristics and health care utilization. The utilization measures include direct computations from the claims data (e.g., charges and reimbursements) and computations with different valuation methods such as Part B carrier average allowed charges or relative value units. Utilization measures are present for Medicare Part B physician/supplier, Part A, Part B hospital outpatient department services, and Black Lung physician/supplier, inpatient and hospital outpatient department services.

### **BENEFICIARY CHARACTERISTICS VARIABLES**

The beneficiary characteristics variables include demographics, residence data, and Medicare entitlement information. These measures are derived from the HISKEW Files.

Demographic variables include gender, race, age at the start of the fiscal year, and date of death. Residence variables include state, county, and zip code. Since only two versions of the HISKEW file were used, we could not determine whether beneficiaries changed their place of residence from year to year during the six fiscal years of the analysis. A single place of residence has been assigned to all of the pre-demonstration observations for a beneficiary using the 1991 HISKEW file and to all demonstration observations using the 1993 HISKEW file. Census region and an urban/rural indicator determined by MSA codes were derived from the HISKEW residence data. Part A and Part B entitlement dates from the HISKEW files were used to determine the types and lengths of Medicare entitlement in each fiscal year. The entitlement variables measure the number of months of Part A and Part B entitlement during the fiscal year. Finally, the start date of eligibility for Black Lung benefits for Funds beneficiaries was obtained from the UMWA-HRF Eligibility File received from ALTA.

## HEALTH CARE UTILIZATION VARIABLES

The utilization variables consist of charge and reimbursement information derived from claims data files for Medicare Part B physician/supplier, Medicare Part A, Medicare Part B hospital outpatient department, and DOL physician/supplier, hospital inpatient, and hospital outpatient services. For Funds beneficiaries, the source of the Part B physician/supplier utilization data is the Claims History File obtained from ALTA. This file contains all (non-drug) claims processed by ALTA for the Funds beneficiaries for dates of service during the six fiscal years. The payers represented in these claims are Medicare, DOL Black Lung, and the UMWA-HRF. Charges and payments for physician and supplier claims with payer allocations of Medicare or DOL Black Lung were accumulated (separately) into the IBAD file utilization variables. The DOL Federal Black Lung Claims History File was a second source of physician/supplier utilization data for Funds beneficiaries with Black Lung coverage. Charges from physician/supplier claims in this file were accumulated in the IBAD file Black Lung variables. The Part B physician/supplier utilization variables for the comparison group of non-UMWA female Medicare beneficiaries were derived from the HCFA BMAD IV Beneficiary Files for calendar years 1987 through 1990 and from the NCH Part B claims files for calendar years 1991-1993. Charges and reimbursements from these files were accumulated into IBAD file variables of the comparison group.

The IBAD file physician/supplier utilization variables are annual sums of the allowed charges and reimbursements from the claims records. For Funds beneficiaries, charges and payments are distinguished by two payers: Medicare or Black Lung. Only Medicare is a relevant payer for the comparison group. Annual dollar totals were computed for allowed charges and reimbursements by payer for both the Funds and comparison beneficiaries. Allowed charges were also categorized by types of service and by physician specialty to create a number of additional utilization variables. Reimbursements could not be assigned to these categories because only one overall payment amount is determined (by ALTA and most Part B carriers prior to 1991) for all of the different services billed on a given claim. Allowed charges are available at the individual service or claim "line item" level where the necessary data items exist to perform the type of service or physician specialty classifications.

The type of service categories used in the IBAD file are those defined by Berenson and Holahan (JAMA, 1992). There are 23 categories: 22 meaningful types of service and one "all other" classification. The Berenson-Holahan type of service categories are shown in Exhibit 3.1. In this scheme, type of service is based (primarily) on the CPT-4 Procedure Code present in the claim line item. The procedure code on each claim line item is examined to determine the type of service, and the allowed charge is accumulated into a corresponding variable. For Funds beneficiaries, Medicare and Black Lung allowed charges were accumulated separately by type of service.

Some modifications to the basic type of service classification scheme were needed to customize the system for the claims files used to build the IBAD file. In the UMWA-HRF ALTA claims, CPT-4 codes were used for all medical and surgical procedures except anesthesia. The procedure code modifier was used to identify anesthesia services in the ALTA claims file. ALTA also uses its own internal set of procedure codes, different from CPT-4 and HCPCS.

**Exhibit 3.1**  
**Berenson-Holahan Type of Service Categories**

- Office Visits
- Hospital Visits
- Emergency Room Visits
- Other Visits
- Evaluation and Management
- Consultation
- Standard Imaging
- Advanced Imaging
- Sonography
- Other Imaging Procedures
- Anesthesia
- Major Procedures - Cardiology
- Major Procedures - Orthopedic
- Major Procedures Other
- Ambulatory Procedures - Eye
- Ambulatory Procedures - Other
- Minor Procedures
- Oncology
- Endoscopy
- Dialysis
- Laboratory Tests
- Other Tests
- All Other

All internal ALTA procedure codes were assigned to the all other category. In the Medicare Part B claims file, CPT-4 procedure codes for anesthesia began to be used only in late 1989 or early 1990. Previously, the HCFA Type of Service Code was used to show anesthesia services. Medicare physician services were assigned to anesthesia if either the procedure was a CPT-4 anesthesia code or the HCFA Type of Service was anesthesia. Also, a limited set of Level III or Local HCPCS procedure codes were assigned types of service by Berenson and Holahan. Local HCPCS codes begin with W, X, Y, or Z and are developed by the Part B carriers for their own use. Medicare Part B services with local procedure codes were assigned types of service based on the combination of procedure code and carrier ID number.

The second kind of categorization of allowed charges was by physician specialty. This classification scheme has 15 categories for physician specialties and one for non-physician. The specialty categories are shown in Exhibit 3.2. Medicare allowed charges from the ALTA and the Part B claims were accumulated into the specialty categories using the physician specialty code in these files. The DOL claims file did not contain a specialty code. Therefore, the Black Lung allowed charges were not categorized in this way. One major difference in specialty

### **Exhibit 3.2**

#### **Physician Specialty Categories**

- General and Family Practice
- Internal Medicine
- Medical Specialties
- Obstetrics/Gynecology
- General Surgery
- Orthopedic Surgery
- Ophthalmology
- Surgical Specialties
- Radiology
- Anesthesiology
- Pathology
- Other Specialties
- Other Physician
- Group Practice
- Psychiatry
- Non-Physician

coding exists between the ALTA claims and the Medicare Part B claims. The HCFA specialty coding scheme in the Medicare Part B file contains a code for group practice, while no corresponding code exists in the ALTA scheme. Thus, the charges from the ALTA claims for physicians in group practices appear in the actual specialty category and those from the Medicare Part B claims appear in the group practice category.

The final classification of allowed charges was for oxygen services. These services include oxygen delivery systems, such as concentrators and stationary or portable gaseous and liquid systems, gaseous and liquid oxygen contents, system accessories, and system maintenance. Oxygen services were identified from the claims line item procedure code. ALTA uses its own internal procedure codes for oxygen services. A listing of oxygen and durable medical equipment procedure codes and a copy of the ALTA procedure code and description file were used to develop the list of oxygen procedures present in the ALTA claims. DOL primarily uses Level II HCPCS procedure codes for oxygen services in its claims file, supplemented with a few internal codes. These codes were identified from a listing of the DOL procedure code and description file. Level II HCPCS procedure codes are used for oxygen services in the Medicare Part B claims. Oxygen procedures identified in this file were primarily those in the Six Point Plan Oxygen Group, as well as those found in the Part B Carrier Claims Processing Manual and a listing of Level II HCPCS codes. Oxygen allowed charges for the Funds beneficiaries were also classified by Medicare or Black Lung payer.

Medicare institutional service measures for both the UMWA-HRF and comparison group beneficiaries were derived from the HCFA MADRS and SAF claims files. These include Part A hospital inpatient (acute care and long term), skilled nursing facility (SNF), home health agency (HHA), and hospice services and Part B hospital outpatient department (OPD) services. Charge and reimbursement variables were computed for the following service categories: inpatient short stay hospitals, inpatient long stay hospitals, SNFs, HHAs, hospices, and OPDs. Number of admissions, lengths of stay, and Medicare covered days variables were computed for inpatient (short and long term) and SNF services. Total visits variables were constructed for HHA services. Black Lung institutional service measures were obtained from the DOL claims file. Charge and reimbursement variables were computed for Black Lung hospital inpatient and OPD services.

Total program charges and reimbursement variables were also computed. Total Medicare Part B variables were calculated by summing Medicare physician/supplier and OPD and total Part A was computed by summing inpatient short stay, inpatient long stay, SNF, HHA, and hospice. Total Medicare charges and reimbursements were obtained by summing total Part B and total Part A. A Black Lung total was computed by summing DOL physician/supplier, inpatient and OPD. Finally, total government variables were obtained by summing total Medicare and total Black Lung.

#### **REVALUATION OF FUNDS MEDICARE SERVICES USING PART B CARRIER PRICES**

The IBAD file for the UMWA-HRF beneficiaries contains a set of variables which were computed by applying the average allowed charges of Medicare Part B carriers to the Medicare-covered services present in the ALTA claims file. These variables simulate what the levels of allowed charges would have been if the claims of Funds beneficiaries had been processed by regular Part B carriers rather than by ALTA. Not all of the Medicare services in the ALTA file could be re-priced, and when a carrier price was not available, the actual ALTA allowed charge was used in the revaluation. Therefore, a comparison of the actual ALTA allowed charges and the simulated carrier re-priced allowed charges yields a conservative estimate of the difference in allowed charges under the ALTA and Part B carrier claims processing systems. The revaluation was applied to total allowed charges and to the type of service and specialty categorizations. The following describes the derivation of carrier prices and their application to the ALTA claims.

The Part B carrier average allowed charges were computed from the HCFA BMAD I Procedure Files for calendar years 1987 through 1992. Since the 1993 BMAD I file was not available in time for the evaluation, the 1992 prices were inflated by the 1993 RBRVS fee schedule update factors to create a set of 1993 prices. The update factors were 1.03097 for surgical procedures (10000-69999) and 1.00806 for radiology, laboratory, and evaluation and management procedures (70000-99999). Average allowed charges for each calendar year were used to re-price claims that fell in the calendar year; costs were then aggregated for the appropriate fiscal years.

The BMAD I file contains a summary of all Part B Claims processed by each carrier in a year. Submitted and allowed charges and units of service are summarized to the carrier, procedure code, procedure modifiers, locality, specialty, type of service, and place of service level. The allowed charges and units of service from each annual BMAD I file were further summarized to the carrier, procedure code, and procedure modifier level to compute the average allowed charges. Procedure codes were restricted to CPT-4 procedures in the range 10000-99999, which include surgical, radiology, laboratory, and evaluation-management procedures. Anesthesia services (CPT-4 procedures 00100-01999 or HCFA Type of Service of anesthesia regardless of procedure code) and services with Level II or III HCPCS codes were excluded. A limited set of procedure modifiers was used: no modifier, assistant at surgery, professional component, and technical component.

The set of carrier average allowed charges was applied to Medicare-covered services in the ALTA claims file. Funds beneficiaries were assigned to a Part B carrier based on their state of residence (or state and county in the case of multiple carrier states like California and New York). Residence was obtained from the HISKEW files. The carrier prices were applied to CPT-4 procedures in the range 10000-99999. Anesthesia services and ALTA internal procedures were not revalued. ALTA procedure modifiers were mapped to the same limited set used in the carrier pricing files. Different calendar year pricing files were used based on the claim date of service. The revalued allowed charges were computed by multiplying the ALTA units of service by the carrier average allowed charge. If there was no carrier price for a given ALTA service or if pricing validity edits were not passed (see below), then the actual ALTA allowed charge was used in the calculation.

A set of validity tests was applied to the data before a carrier price was used in the revaluation. Both the carrier average charges and the ALTA units of service and allowed charges were subjected to consistency edits. The edits were developed through an examination of "pricing outliers" found in test files of the claims. Outliers were defined by claims that had extreme values of service units or extreme values of the ratio of actual ALTA allowed charges to revalued allowed charges. The first test limited the values of service units that could be used in a revaluation: the maximum units per claim line item was three with the exception of physician visits procedures where a maximum of nine was permitted. This edit eliminated the



use of claims where there might have been errors in coding the units of service or where the units might mean something other than number of times the procedure was performed (e.g., number of minutes rather than number of visits). A service which passed the units edit was then subjected to the ratio edit: the ratio of ALTA allowed charges to revalued allowed charges had to be greater than 1/5 and less than 5, unless the absolute value of the difference of the ratio components was \$25 or less. This edit bypassed claims where the revaluation would have resulted in widely different actual and calculated allowed charges.

#### VALUATION OF MEDICARE PHYSICIAN SERVICES USING RELATIVE VALUE UNITS

Another set of variables in the IBAF file values the Medicare-covered physician services of Funds and comparison group beneficiaries using the Medicare Fee Schedule Resource Based Relative Value Scale (RBRVS). The RBRVS relative value units (RVUs) for work from the 1992 fee schedule were used to create these variables. The work RVUs are intended to provide an invariant index of the volume of physician services received by beneficiaries. While the allowed charge level and payment level for a given procedure will change over time and relative to other procedures, the work RVU for that procedure maintains a constant value and position relative to other procedures. The valuation using work units was made overall and by the type of service and specialty categories. The following describes the development of the RVU file and the computation of the IBAF file RVU variables.

A file of RBRVS work values was created from the 1992 Medicare Fee Schedule as published in the Federal Register. The fee schedule covers the most common physician services and includes surgical, radiology, and evaluation-management procedures in the CPT-4 range 10000-99999. Specifically excluded are anesthesia (CPT-4 00100-01999) and laboratory services (most CPT-4 procedures in the range 80000-89999).

Two modifications to the published fee schedule were necessary for the RVU valuation. First, the fee schedule uses a new set of CPT-4 evaluation-management (visits) procedure codes (primarily in the range 99201-99499, as described in the 1992 edition of CPT-4). Both the ALTA and Medicare Part B claims files prior to 1992 contained the older, replaced set of procedures (codes in the range 90000-90699). Some of the old codes were simply replaced by one new code, while others were replaced by two or more new procedures. The

Federal Register contained a set of "weights" that indicated how an old procedure code could be "mapped" to the new codes. These weights were used to compute RVU work values for the old evaluation-management procedures from the new codes (e.g., 25% of the work value of one new code and 75% of the work value of a second new code).

The second modification involved generating RVUs for surgical assistants. The fee schedule contains only three procedure modifiers: no modifier, professional component, and technical component. Assistants at surgery are paid under the fee schedule at 16% of the surgeon's fee. A set of RVU work values was generated for assistants for surgical procedures by multiplying the original work value by 0.16.

The RVU work values were matched to claims in the ALTA and Medicare Part B files by procedure code and modifier. When present, the work value was multiplied by the claim units of service and accumulated in the RVU variables. A units of service edit was applied to the claims: the maximum units per claim line item was three with the exception of physician visits procedures where a maximum of nine was permitted.

#### **THE FUNDS BENEFICIARY SAMPLE**

The sample of Funds beneficiaries represented in the IBAD file are all those beneficiaries who had entitlement to Medicare Part B at some time during the six fiscal years from July 1987 through June 1993. Derivation of the sample was a two-step process. An initial list of Funds members was selected from the UMWA-HRF Eligibility File. The selection criteria were UMWA-HRF eligibility at some time between July 1987 and June 1993 and the presence of a Medicare Health Insurance Claim Number (HICN) in the eligibility file record. The UMWA-HRF Primary Social Security Number, Member ID Number, HICN, and DOL Black Lung Eligibility Date were extracted from the file for members meeting the above criteria. The UMWA-HRF IDs and the HICN were checked for consistency, and a file of the HICNs was sent to HCFA to obtain the HISKEW File records for these beneficiaries. The final selection of the sample was made from the HISKEW File based on the Part B entitlement dates and residence: beneficiaries having Medicare Part B entitlement during the period July 1987 through June 1993 and residing in the 50 states or the District of Columbia.

Eligibility for Black Lung benefits is determined by the presence of a DOL Black Lung Eligibility Date from the UMWA-HRF Eligibility File. This criterion was used in the IBAD file to show Black Lung eligibility. The Social Security Numbers of these beneficiaries were sent to DOL to obtain the Black Lung Claims History File. All Black Lung eligibles are Funds primary beneficiaries.

#### **THE COMPARISON GROUP BENEFICIARY SAMPLE**

The comparison group is composed of female Medicare beneficiaries that had Part B entitlement at some time during the period from July 1987 through June 1990, were not members of the Funds, and were part of the Medicare 5% beneficiary sample. The 5% beneficiary sample consists of individuals having a Claim Account Number (Social Security Number portion of the Medicare HICN) that end with the digits 05, 20, 45, 70, or 90. The comparison group was limited to those in the Medicare 5% sample because Part B claims data prior to 1990 are available only for the 5% sample in the BMAD IV Beneficiary File.

The comparison group was selected as a geographically-stratified random sample. The strata sizes were selected to match the percentage distributions of the state of residence for female Funds beneficiaries in the IBAD file. A frequency distribution of UMWA-HRF females by state of residence was generated. A total comparison group sample size of 100,000 beneficiaries was selected and the UMWA-HRF female state proportions were multiplied by the total sample size to determine the number of comparison group beneficiaries to select per state. The HISKEW File for the 5% sample of females was screened for beneficiaries that were not UMWA-HRF members and were entitled to Part B at some time during fiscal years 1988 through 1990. From this group, beneficiaries in each state were randomly selected according to the sample size criterion.

Except West Virginia, all states had a sufficient number of comparison beneficiaries to fulfill the sample size requirements. The sample size required for West Virginia was 23,557, but only 8,225 beneficiaries were available. In order to deal with this shortfall, members of the comparison group were assigned case weights to maintain the geographic stratification. Specifically, beneficiaries in West Virginia were assigned a weight equal to 23,557/8,225 (approximately 2.864), and beneficiaries from all other states were assigned a weight of 1.

The comparison group IBAD sample differs in an important way from the UMWA-HRF IBAD sample. The comparison group consists of beneficiaries entitled to Medicare Part B at some time during the pre-demonstration period. Attempting to supplement the sample would have greatly complicated the weighting scheme. This is the group of beneficiaries that were represented in the interim evaluation report. In the current report, we extend their utilization data to the demonstration period, but we do not allow any new entrants to supplement the comparison sample as replacements for those that might have died prior to or lost Medicare entitlement during the demonstration period. Attempting to supplement the sample would have greatly complicated the weighting strategy and adequate comparisons were possible by simply following the pre-demonstration cohorts.

The UMWA-HRF IBAD sample was supplemented with new entrants that were entitled to Medicare during the demonstration but were not entitled during the pre-demonstration period. All analysis that reports on the UMWA-HRF as a whole includes both the original pre-demonstration cohort (those included in the interim report) and new entrants during the demonstration. However, all comparisons between the comparison group and the UMWA-HRF women include only the UMWA pre-demonstration cohort, excluding any new entrant Funds women. These are the same groups that were compared in the interim report, and the same weighting scheme is used for the comparison group in the current report.

#### THE EPISODES OF CARE FOR AMI (ECAMI) ANALYTIC FILE

The ECAMI file is used to analyze episodes of health care utilization for UMWA-HRF Medicare beneficiaries that were hospitalized for an acute myocardial infarction (AMI). The purpose of the analysis is to determine whether the demonstration caused any shifts in utilization or costs away from or toward the Part B physician/supplier services that were capitated relative to the non-capitated Medicare or Black Lung services. By focusing on beneficiaries with AMIs, we can control, to some degree, the differences in health status and severity that might otherwise complicate an analysis of cost shifting. Use of the episode concept as a unit of observation permits an analysis of all the different types of utilization delivered within similarly-timed periods relative to a given health care event (in this case the hospital admission for an AMI).

This section describes the sampling process, the episode analytic time periods, and the types of variables contained in the analytic file.

### THE EPISODE SAMPLE

The ECAMI file sample consists of a set of "trigger" health care events for UMWA-HRF beneficiaries defined by an admission to an acute care hospital for an AMI. The Medicare inpatient short stay claims file was searched for records that fit this definition. The specific criteria used to select the sample were:

- Admission to an acute care (short stay) hospital with a principal diagnosis of AMI (410.X) and a DRG code of 121, 122, or 123.
- Date of admission from January 1, 1988 through December 31, 1992.
- No prior AMI admission (episode) for 90 days.
- Continuous entitlement to Medicare Parts A and B for six months following the date of admission or from the date of admission until the date of death, if death occurred less than six months after the admission.

The first criterion selects AMI admissions and limits the cases to medical admissions for AMI only. Screening for DRG 121-123 excludes cases admitted with an AMI diagnosis that were in surgical DRGs, such as coronary artery bypass grafts, or other more complicated medical DRGs. The second criterion selects admissions that are within the six fiscal year analysis period while maintaining complete six month pre- and post-admission periods. These six-month periods are used to define parts of the episode for the construction of analytic variables. The third criterion excludes AMI admissions that might be considered part of an earlier episode. The sampling process selected all admissions for a beneficiary that met the first two criteria and then compared the admission dates of these records. Any admission that occurred more than 90 days after the most recent prior admission was accepted into the sample. The final criterion was applied to ensure that the utilization measures would not be biased by the beneficiary not being eligible for Medicare services during the six-month post-admission period.

### THE EPISODE TIME PERIODS

Each observation in the ECAMI file represents an episode of care surrounding an inpatient admission for an AMI. The episode observation covers a 360-day period starting at 180 days before the AMI admission and ending 179 days after the date of admission. Five sub-periods have been defined within the complete episode:

- The AMI trigger event stay (admission date through discharge date).
- Six-months pre-admission (180 days before through 1 day before the trigger event admission date).
- Three-months pre-admission (90 days before through 1 day before the trigger event admission date).
- Three-months post-admission (the trigger event admission date through 89 days after the trigger event admission date).
- Six-months post-admission (the trigger event admission date through 179 days after the trigger event admission date).

## THE ANALYTIC VARIABLES

The ECAMI file contains variables that measure the health care utilization of the beneficiary during the time period of the episode. Each record contains demographic and residence variables from the HISKEW and Funds' Eligibility files and health utilization measures from the ALTA claims, the Medicare Part A claims, the Medicare OPD claims, and the DOL claims files. Utilization variables are computed for each of the episode sub-periods. The measures corresponding to the trigger event admission period are those from the AMI hospital admission record. These include the inpatient charges, reimbursement, length of stay, covered days, diagnosis codes, procedure codes and dates, DRG code, discharge status, etc.

The variables corresponding to pre- and post-admission sub-periods summarize the health care utilization (charges, reimbursements, admissions, days, and visits) that occurred during each period. Since the focus of the ECAMI analysis is on shifts of service use among payers and providers, the utilization summary measures were designed to highlight these categories. At the payer level, the variables distinguish between Medicare and Black Lung, as well as combining these payers (total government). Medicare utilization is categorized as: (capitated) ALTA Part B physician and supplier; Part A inpatient (short and long term), SNF,

HHA, and hospice; and Part B OPD. ALTA physician/supplier utilization is classified by the Berenson and Holahan type of service categories and the provider specialty categories that were described above for the IBAD file. The units of ALTA physician services are also valued in terms of RBRVS work units, overall and by type of service classification. Black Lung utilization is accumulated by physician/supplier, hospital inpatient, and OPD. Indicators of the occurrence of cardiac-related procedures were also constructed, such as indicators for coronary artery bypass and cardiac catheterization. These indicators were derived from the CPT-4 procedures in the ALTA claims and from the ICD-9-CM procedures in the Medicare institutional claims.

## **PRESENTATION OF RESULTS**

The quantitative evaluation is reported in two parts. The body of subsequent chapters presents results graphically. A separate appendix provides extensive tabulations that report considerable detail on selected subpopulations of interest. The analysis in Chapters 4 through 9 uses descriptive statistics and reports findings that compare subpopulation means using standard t-statistics and two-tailed tests for significant differences. More detailed statistical information is found in the appendix tables which are referenced in the text but are bound in a separate volume.

Chapter 10 presents the results of a multivariate examination of the database discussed in the previous chapters. The multivariate work was based on a 5% random sample of the Funds beneficiaries. A sample was chosen to minimize the cost of the analysis.

#### **4.0 CHARACTERISTICS OF UMWA HRF MEDICARE BENEFICIARIES**

This chapter examines enrollment and mortality patterns within the population of Funds members. We used six years of enrollment and claims data for the entire population of UMWA HRF Medicare beneficiaries to analyze the impacts of the demonstration. The first three years (FY 1988 through FY 1990) covered the period immediately prior to the demonstration. The last three years (FY 1991 through FY 1993) were the demonstration years. In each year the population of Funds members changed because new Medicare beneficiaries were enrolled and a proportion of Funds members died. Enrollment and death were expected to affect spending and utilization patterns in each year of the study, to the extent that these factors changed the demographic composition of the Funds population.

UMWA members and their dependents are eligible for benefits from the Health and Retirement Funds based on their employment and the collective bargaining agreements in effect at any time. When a UMWA HRF member becomes eligible for Medicare benefits either because of disability, age, or end-stage renal disease, they became a part of the study population for this evaluation. Declines in the number of coal miners over time have reduced the pool of UMWA HRF members who become eligible for Medicare benefits during recent years.

The data indicated that the enrollment of new Funds beneficiaries fell each year while the incidence of mortality increased slightly. These changes resulted in an aging population of beneficiaries and an overall decline in the number of Funds members.

#### **ENROLLMENT**

Between fiscal years 1988 and 1993, the number of UMWA Health and Retirement Funds Medicare beneficiaries declined by 17.2 percent. In 1988, the beginning of the period covered by this evaluation, there were 119,771 beneficiaries, by 1990, the period immediately prior to the start of the demonstration, there were 111,312, by the end of the demonstration period in FY 1993, enrollment had fallen to 99,159. The fall in enrollment was slightly higher (4.3 percent average annual decrease) during the demonstration as compared to the period before the demonstration (3.6 percent average annual decrease).

The decline was more pronounced among men than among women. The number of male beneficiaries fell by 27 percent during the six-year period, while the number of females

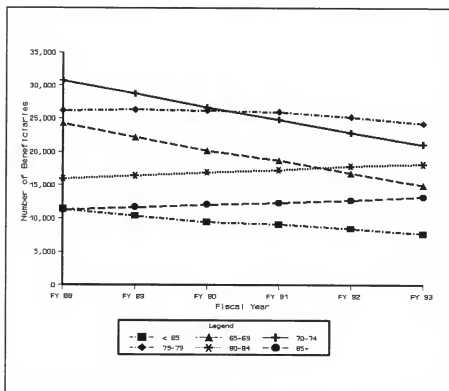


fell by only 10.5 percent. Women comprised the majority of Funds beneficiaries. In FY 1993, 64.4 percent of the eligible beneficiaries were women.

Figure 4.1 displays the changing age distribution of the Funds beneficiary population. Those cohorts less than 80 years of age experienced enrollment contraction between fiscal years 1988 and 1993. Conversely, the older cohorts, those 80 years of age and older, experienced enrollment growth. The changing average age of beneficiaries reflected these changes in age-specific enrollment. In FY 1993 the average beneficiary age was 75.2 years compared to the

**Figure 4.1**

**Number of UMWA-HRF Medicare Beneficiaries by Age  
Fiscal Years 1988-1993**



average age of 73.5 years in FY 1988. The changing age distribution was principally a result of the declining number of newly eligible Funds beneficiaries. In 1988, there were 3,034 new

entrants into the population. By 1993, the number had decreased by 46 percent to 1,635 new entrants.

The appendix tables report on a number of additional characteristics of the Funds beneficiary population including race, and geographic distribution. The majority of Funds beneficiaries (approximately 92 percent) were white. We note, but do not discuss in the body of this chapter, the importance of the rural areas of West Virginia and Kentucky, and the urban areas of Pennsylvania, where more than 50 percent of all Funds Medicare beneficiaries resided.

## **Mortality**

Mortality potentially affected the demonstration in a number of different ways. First, mortality denoted attrition. Attrition that was concentrated within particular groups had potential implications for changes in the profile of the beneficiary population. Second, mortality has consistently been associated with higher utilization rates and medical care costs during an individual's last year of life. Third, mortality as a health outcome may have been directly affected by the demonstration. Our ability to separate the effects of mortality from other factors likely to have been associated with measures of costs and utilization influenced our ability to estimate demonstration effects.

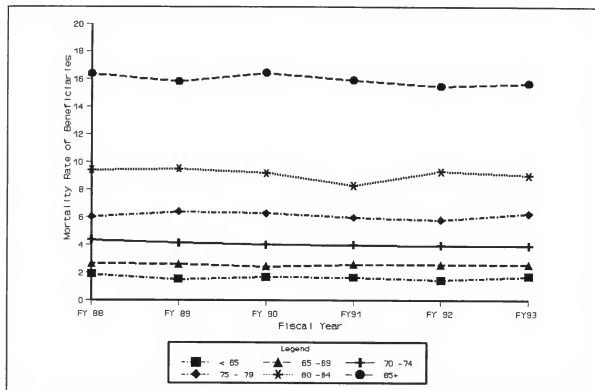
Throughout the six-year study period approximately three times as many beneficiaries died as became new entrants. The percentage of beneficiaries who died in a given year slowly increased from FY 1988 through FY 1993 resulting in a 10.9 percent overall increase in the incidence of mortality over the six-year period. In the years prior to the demonstration the average annual mortality rate was 2.1 percent, during the demonstration the average annual mortality rate doubled to 4.3 percent.

The incidence of mortality increased fastest among women (16.4 percent increase), particularly during the years of the demonstration when the average annual increase in mortality was 6.2 percent. However, in any given year, men experienced a higher incidence of mortality compared to women. Comparing across race, blacks consistently had the highest mortality rates. Beneficiaries receiving Department of Labor (DOL) Black Lung benefits had mortality rates that were approximately twice those of other beneficiaries.

As Figure 4.2 demonstrates, death was positively correlated with age. However, the age-specific death rates declined or were flat for all age groups during the six-year period. These flat profiles suggested that the acceleration in the overall incidence of mortality during the demonstration period was determined by changes within the beneficiary population, such as the increasing average age of the population or changes in the underlying health profile of Funds members.

Figure 4.2

**Mortality Rate of UMWA-HRF Medicare Beneficiaries by Age  
Fiscal Years 1988-1993**



Using a five percent random sample of Funds beneficiaries, gender specific death and survival analyses were conducted. These models confirmed that a given beneficiary was no more likely to die during the demonstration than in the years prior to the demonstration. The most significant demographic characteristics associated with mortality in a given year were age

and receipt of DOL Black Lung benefits among male beneficiaries. These results, together with the flat age-specific death rates over the six years, indicated that overall changes in the incidence of mortality were due to the increasing average age of the beneficiary population. The average age of a Funds beneficiary increased from 73.5 years in FY 1988 to 75.2 years in FY 1993. Increases in the average age of female beneficiaries and those with DOL Black Lung benefits were more rapid relative to comparison beneficiaries. Female beneficiaries saw their average age increase from 74.1 years in FY 1988 to 76 years in FY 1993 while the average age of DOL Black Lung beneficiaries increased from 74.5 years in FY 1988 to 77.3 years in FY 1993.

If mortality effects were delayed for several years, then those effects associated with the demonstration may not have been detectable with only three years of demonstration data. Mortality effects of the demonstration would have worked indirectly through changes in services provided to Funds members, changes that would have influenced health outcomes and mortality. We conclude, therefore, that the demonstration had no measurable effects on mortality during the three years of the demonstration.

## **5.0 COST AND UTILIZATION OF MEDICARE PART B SERVICES AMONG UMWA HRF MEDICARE BENEFICIARIES**

In this chapter we examine the costs and utilization patterns of Medicare Part B services. Because the demonstration was a change in Part B pricing policies we expected that the demonstration would be associated with changes in Part B services. We looked for demonstration effects by first examining growth rates and then levels of Part B costs and measures of utilization in the three years prior to the demonstration and compared them to rates and levels during the demonstration period. Tests of statistically significant differences between pre-demonstration and demonstration levels of Part B costs and utilization were done using a five percent random sample of Funds beneficiaries. Charges exhibited considerable variability; in any given year many beneficiaries did not use a service and charges were skewed among users of services (i.e., there was a small number of intense users). In an attempt to control for this variability the comparisons of means were initially done using both users and non-users of the services and then repeated for only those beneficiaries who used the relevant services.

This chapter initially examines Part B allowed charges and estimated payments. Allowed charges and estimated payments are cost concepts that combine utilization rates and pricing policies. Therefore, after examining growth rates and levels of Part B allowed charges and estimated payments we similarly analyze utilization to determine the extent to which changes in charges and payments were due to changes in utilization of Part B services. The discussion then proceeds to pricing policies and a comparison of charges allowed by ALTA and what those charges would have been if they were priced according to local Part B carrier pricing policies. This comparison demonstrates that the demonstration and the implementation of the Medicare Fee Schedule brought uniformity to the pricing policies of ALTA and local Part B carriers.

The data suggest that prior to the implementation of the Medicare Fee Schedule, total monthly per capita Part B allowed charges, allowed physician charges, and estimated payments were significantly greater than the same charges incurred during the three years prior to the demonstration. After the fee schedule change these charges were not significantly different compared to charges during the pre-demonstration period. When charges and payments were converted to constant 1993 dollars, charges were not significantly different across the pre-demonstration period and the demonstration period prior to the fee schedule change, but after

the fee schedule change charges and payments were significantly less. These patterns suggest that the implementation of the Medicare Fee Schedule was associated with arresting the growth in nominal total Part B allowed charges, allowed physician charges, and estimated payments and resulted in a contraction in real charges and payments. As expected, changes in allowed charges for non-physician and oxygen services were not associated with the Medicare Fee Schedule change, but a small contraction during the demonstration period in allowed charges for these services suggest that the demonstration may have contributed to the contraction Part B charges.

## **5.1 PART B ALLOWED CHARGES AND ESTIMATED PAYMENTS**

### **Total Allowed Charges**

The most dramatic change associated with the demonstration was the contraction of total Medicare Part B allowed charges during the demonstration period (fiscal years 1991 through 1993). In FY 1988 total Part B allowed charges were almost \$215 million. By 1991 total charges had increased by 28.2 percent to \$281 million. Between 1991 and 1993, however, total charges had decreased by an average annual rate of 7.7 percent.<sup>1</sup> By 1993 total allowed charges were \$238 million, representing a 15.4 percent decrease since 1991. Figure 5.1 shows these changes in total Medicare Part B allowed charges across age groups.

Monthly per capita Medicare Part B allowed charges followed the same pattern.<sup>2</sup> Prior to the demonstration the average annual increase in monthly per capita Medicare Part B allowed charges was 12 percent. During the demonstration the trend was reversed and allowed charges fell annually by 13 percent. Between fiscal years 1992 and 1993 allowed charges fell by 21 percent. Over the six years the net result was a slight increase in monthly per capita allowed charges from \$119.68 in FY 1988 to \$121.60 in FY 1993 (a 1.6 percent increase). Figure 5.2 highlights these changes as they occurred across the different age groups. Figure 5.2 and the appendix tables indicate that these changes in Part B allowed charges were uniform across all subgroups of beneficiaries.

---

<sup>1</sup>Between FY 1988 and FY 1993 the average annual increase in the CPI-U for medical care was 6.7 percent.

<sup>2</sup>Dividing total allowed charges by the number of person-months adjusts for the changing size of different age cohorts and presents the data in the same way that the capitation demonstration deals with costs (i.e., per entitlement month).

Figure 5.1

**Total Medicare Part B Allowed Charges  
for UMWA-HRF Medicare Beneficiaries by Age  
Fiscal Years 1988-1993**

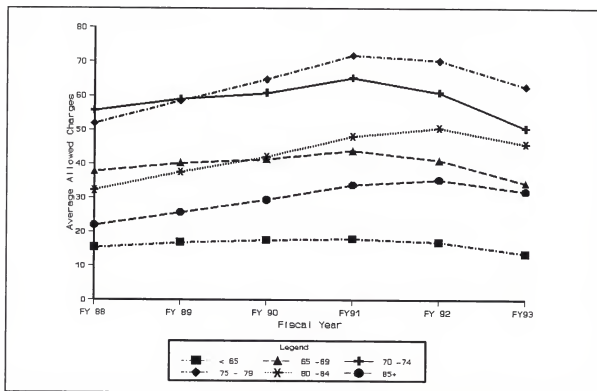
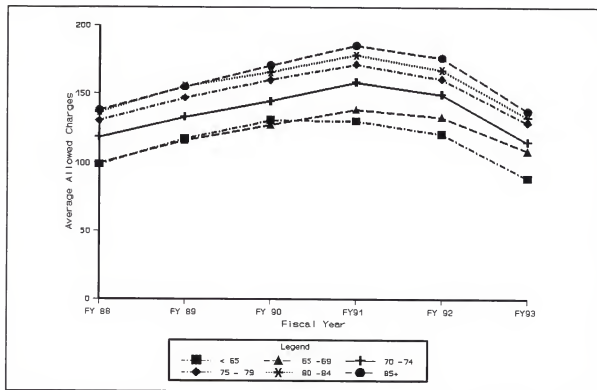


Figure 5.2

Average Medicare Part B Allowed Charges per Eligibility Month  
for UMWA-HRF Medicare Beneficiaries by Age  
Fiscal Years 1988-1993



Tests of statistically significant differences between pre-demonstration and demonstration levels of monthly per capita Part B allowed charges suggested that prior to the implementation of the Medicare Fee Schedule allowed charges were significantly higher during the demonstration compared to the pre-demonstration period. After the fee schedule change Part B allowed charges were not significantly different from pre-demonstration allowed charges. The average monthly per capita Medicare Part B allowed charge over the three years prior to the demonstration was approximately \$132. During the demonstration period, but prior to the change in the Medicare Fee Schedule, average Part B allowed charges were significantly greater



at \$163 ( $p < .05$ ).<sup>3</sup> After the fee schedule change allowed charges fell to \$126 and were no longer significantly different from the pre-demonstration charges. When the analysis was restricted to only users of Part B services the same pattern of significant differences were found; allowed charges incurred during the demonstration, but prior to the implementation of the Medicare Fee Schedule, were significantly greater ( $p < .05$ ) than allowed charges incurred prior to the demonstration, but allowed charges incurred after the fee schedule change were not significantly different from those incurred prior to the demonstration.

To control for inflation in medical prices allowed charges were converted to constant 1993 dollars using the average monthly CPI-U medical care index.<sup>4</sup> Allowed charges in constant 1993 dollars remained flat after the demonstration. However, they fell significantly after the introduction of the Medicare Fee Schedule. When allowed charges were converted to constant 1993 dollars there was no statistical difference between pre-demonstration allowed charges (\$179 in 1993 dollars) and demonstration allowed charges (\$181 in 1993 dollars) incurred prior to the Medicare Fee Schedule change. After the fee schedule change allowed charges in constant 1993 dollars were significantly less than allowed charges during the pre-demonstration period (\$179 in the pre-demonstration period and \$126 after the fee schedule change, a difference of \$52.72,  $p < .01$ ). A significant decrease in allowed charges in constant 1993 dollars after the Medicare Fee Schedule change was also evident when the sample was restricted to only users of Part B services.

#### **Allowed Physician Charges**

Medicare Part B allowed charges cover physician and non-physician services. The patterns seen in total allowed charges were principally driven by changes in allowed physician charges. Prior to the demonstration monthly per capita allowed physician charges experienced average annual increases of 11 percent, during the demonstration these charges decreased annually by 16 percent. Between fiscal years 1992 and 1993, after the implementation of the Medicare Fee Schedule, physician charges contracted by 24 percent. Over the six-year study

---

<sup>3</sup>All tests were two-tailed tests.

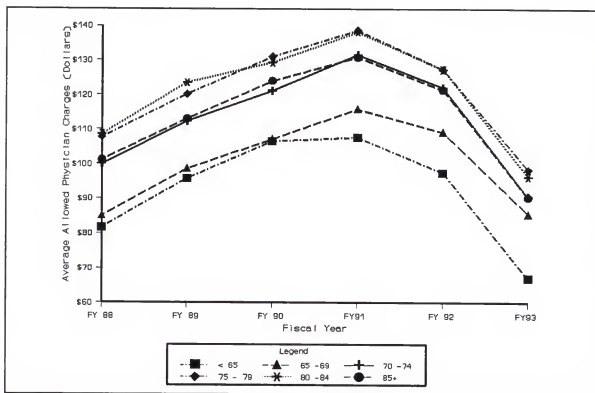
<sup>4</sup>The monthly average CPI-U medical care index for fiscal years 1988 through 1993 were 134.2, 143.6, 155.6, 170.2, 183.8, and 195.9.

period monthly per capita Part B allowed physician charges fell from \$98.23 to \$90.98, a 7.4 percent decrease (See Figure 5.3). These trends in allowed physician charges occurred across all age groups and regions.

When the levels of pre-demonstration and demonstration allowed physician charges were compared, only physician charges between the pre-demonstration period (\$107) and the demonstration period prior to the Medicare Fee Schedule change (\$127) were significantly different. When only users of physician services were analyzed the difference in allowed

Figure 5.3

**Average Medicare Part B Allowed Physician Charges per Eligibility Month for UMWA-HRF Medicare Beneficiaries by Age Fiscal Years 1988-1993**



physician charges across these two time periods was not significant. There was no significant difference between pre-demonstration physician charges and demonstration physician charges incurred after the fee schedule change (\$92). When allowed physician charges were converted

to 1993 dollars there was no significant difference between the pre-demonstration period and the demonstration period prior to the fee schedule change. However, after the change in the Medicare Fee Schedule allowed physician charges (\$92) were significantly lower ( $p < .01$ ) than the same charges incurred during the pre-demonstration period (\$145). The same pattern of significant and insignificant differences in constant 1993 dollar allowed physician charges was evident when only users of physician services were analyzed.

#### **Allowed Charges by Service Type**

Figure 5.4 provides a summary of the service distribution of monthly per capita Part B allowed charges. Between fiscal years 1988 and 1993 monthly per capita allowed charges for office visits increased by 23 percent from \$11.87 to \$14.56. These charges increased each year until FY 1993 when they fell by 8.2 percent. The initial growth in allowed charges for office visits resulted in significantly ( $p < .01$ ) greater charges during the demonstration period compared to the pre-demonstration period. After the fee schedule change, however, allowed charges for office visits were not significantly different from the same charges incurred in the pre-demonstration period. These same results were also seen when the analysis was restricted to only beneficiaries with physician office visits. When allowed charges were converted to constant 1993 dollars allowed charges for office visits during the demonstration were not significantly different from the same allowed charges incurred during the pre-demonstration period. Part B allowed charges for office visits in constant 1993 dollars, however, were significantly ( $p < .01$ ) less after the fee schedule change compared to the same charges incurred during the pre-demonstration period.

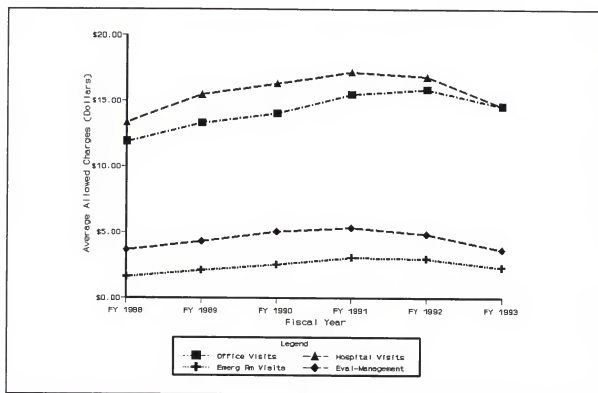
Figure 5.4 suggests that allowed charges for hospital visits mirrored the changes seen in allowed charges for office visits. Overall, allowed charges for hospital visits increased by 9.3 percent between fiscal years 1988 and 1993 (from \$13.31 to \$14.55). These charges increased until FY 1992 when they fell by 2.2 percent. Between fiscal years 1992 and 1993 they fell by 13.4 percent. Despite the broad similarity to the changes seen in allowed charges for office visits, allowed charges for hospital visits were never significantly different between the pre-demonstration and demonstration periods. Charges for hospital visits demonstrated considerable variability, but even when the analysis was restricted to only beneficiaries who

received Part B hospital visits there were no significant differences between the pre-demonstration and demonstration periods.

Charges for evaluation and management visits also initially increased. However, these charges fell by 9.2 percent between fiscal years 1991 and 1992 and by another 24.5 percent between fiscal years 1992 and 1993. By FY 1993 monthly per capita allowed charges for evaluation and management visits were the same as in FY 1988, \$3.66. Monthly per capita

Figure 5.4

**Average Medicare Part B Allowed Charges per Eligibility Month  
of UMW-HRF Funds Medicare Beneficiaries by  
Type of Service Fiscal Years 1988-1993**



Part B allowed physician charges for evaluation and management visits were not significantly different across the pre-demonstration and demonstration periods, except when allowed charges were converted to constant 1993 dollars. After the implementation of the Medicare Fee Schedule allowed charges for evaluation and management visits in constant 1993 dollars were

significantly ( $p < .01$ ) less than the same charges incurred in the pre-demonstration period. Prior to the fee schedule change these charges were not significantly different between the pre-demonstration and demonstration periods. The same results were also evident when the sample was restricted to only beneficiaries with any evaluation and management visits.

Changes in allowed charges for emergency room visits mirrored those of office visits. Charges for emergency room visits continued to increase until FY 1992 when they fell by 3.2 percent. Between fiscal years 1992 and 1993 they fell by 22.7 percent. Similar to charges for office visits, monthly per capita part B allowed physician charges for emergency room visits were significantly different between the pre-demonstration period and the demonstration period prior to the implementation of the Medicare Fee Schedule. After the fee schedule change charges for emergency room visits were not significantly different from the same charges incurred during the pre-demonstration period. This same pattern of significant and insignificant differences was seen when the analysis was restricted to only beneficiaries with emergency room visits. When charges for emergency room visits were converted to constant 1993 dollars there were no significant differences between the pre-demonstration and demonstration periods except when the analysis was restricted to only those with an emergency room visit. After the implementation of the Medicare Fee Schedule allowed charges for emergency room visits in constant 1993 dollars among those with an emergency room visit were significantly ( $p < .01$ ) less than similar charges incurred during the pre-demonstration period.

#### **Physician Allowed Charges per RBRVS Work Unit**

Part B physician allowed charges by service type were also examined per RBRVS work unit. Appendix Table 10 presents these calculations. Allowed charges for office visits increased by 22.6 percent during the pre-demonstration period, during the demonstration they only increased by 1.7 percent. Charges for the other service types did not increase as rapidly and for hospital, emergency room, and evaluation and management visits they decreased during the demonstration period. Allowed charges for hospital visits increased by 7.7 percent between FY 1988 and FY 1990. Between fiscal years 1991 and 1993 these charges fell by 6.9 percent. Similarly, allowed charges for emergency room visits increased by 7.2 percent in the pre-demonstration period and then decreased by 5.1 percent during the demonstration. Allowed charges per work unit for evaluation and management visits increased by 3.5 percent during the

pre-demonstration period. These charges fell by 14.3 percent during the demonstration for a net decrease of 10.0 percent between fiscal years 1988 to 1993.

#### **Allowed Non-Physician Charges and Allowed Oxygen Charges**

Changes in monthly per capita allowed charges for non-physician services followed patterns similar to total allowed charges and allowed physician charges, but they were not statistically associated with the Medicare Fee Schedule. Monthly per capita allowed charges for non-physician services increased during the six-year study period from \$21.45 in FY 1988 to \$30.62 in FY 1993, a 42.8 percent increase (see Figure 5.5). The average annual increase in non-physician charges was 11.8 percent until FY 1993 when they fell by 8.1 percent. This fall in non-physician charges suggests that perhaps there was a delayed response to the demonstration, but the evidence does not support a finding that the demonstration reduced expenditures.

Unlike total allowed charges and allowed physician charges, the level of allowed non-physician charges incurred during the pre-demonstration period were not significantly different from the level of charges incurred during the demonstration, either before or after the change in the fee schedule. The insignificance across periods was also evident when the analysis was restricted to only users of non-physician services or when charges were converted to constant 1993 dollars.

Allowed charges for oxygen services experienced small increases until FY 1993 when they fell by 18.4 percent (see Figure 5.6). This contraction suggests a delayed demonstration effect. Between fiscal years 1988 and 1993 monthly per capita oxygen charges fell by 4.6 percent. Despite the fall in these charges, allowed oxygen charges during the demonstration period were not significantly different from the same charges incurred during the pre-demonstration period.

The lack of statistically significant differences in the level of charges across the periods may be due to relatively greater variability in non-physician and oxygen charges. However, as Figures 5.5 and 5.6 suggest, the demonstration may have affected these charges. Unlike total and physician allowed charges, non-physician and oxygen charges did not contract until FY 1993 suggesting that the demonstration affected charges, but not significantly, in a delayed manner.

Figure 5.5

Average Medicare Part B Allowed Non Physician Charges per Eligibility Month  
of UMWA Health and Retirement Funds Medicare Beneficiaries by Age  
Fiscal Years 1988-1993

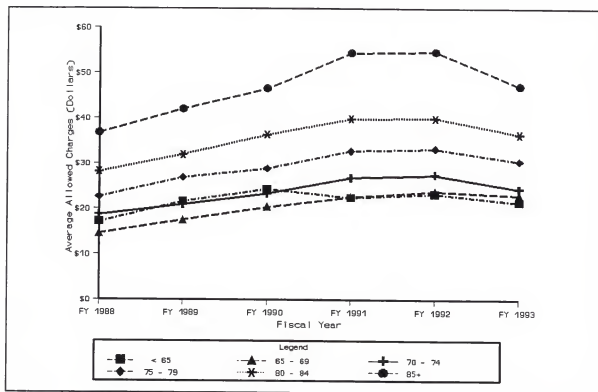
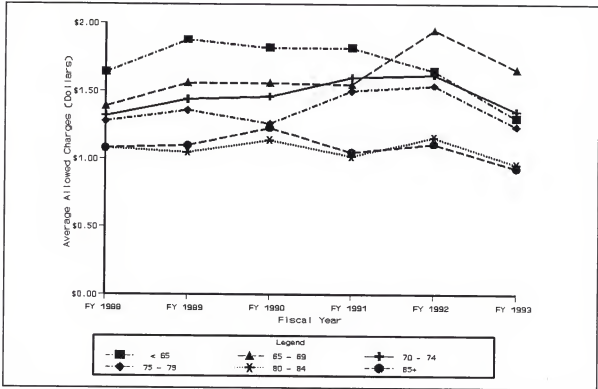


Figure 5.6

**Average Medicare Part B Allowed Oxygen Charges per Eligibility Month  
of UMWA Health and Retirement Funds Medicare Beneficiaries by Age  
Fiscal Years 1988-1993**



**Estimated Payments**

Figures 5.7 through 5.9 report estimated Medicare Part B payments for which HCFA was responsible. This payment is not an informational item directly computed in the available claims data. Rather, the payment was computed, by applying a three-step procedure. First, the fiscal year UCR adjustment (from the year-end settlement between HCFA and the Funds) was used to adjust reported allowed charges. Second, we estimated the individual deductible from the claims data. Finally, we applied 80 percent to the amount remaining. The estimation



Figure 5.7

Estimated Medicare Part B Payments per Eligibility Month with UCR Adjustment  
of UMWA Health and Retirement Funds Medicare Beneficiaries by Age  
Fiscal Years 1988-1993

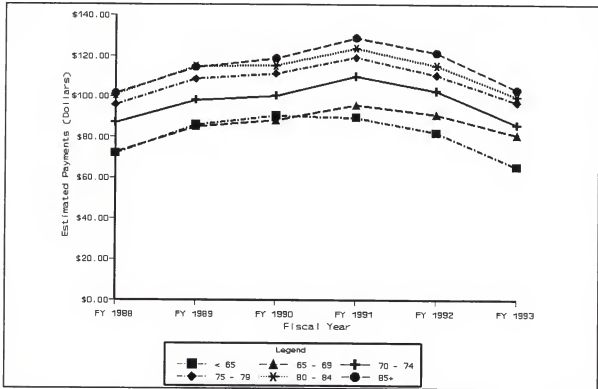


Figure 5.8

Estimated Medicare Part B Payments per Eligibility Month with UCR Adjustment  
of UMWA-HRF Medicare Beneficiaries by Census Region  
Fiscal Years 1988-1993

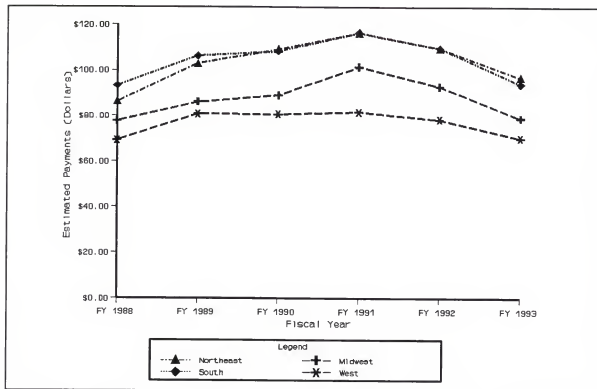
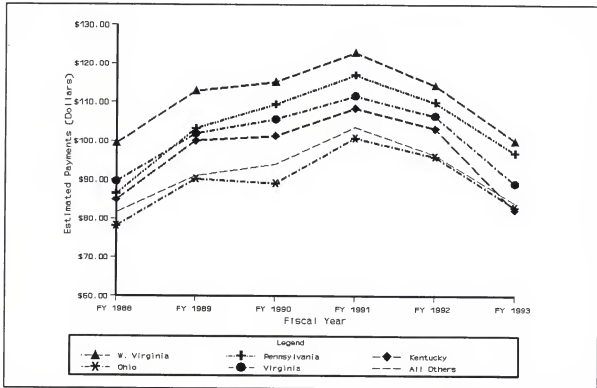


Figure 5.9

Estimated Medicare Part B Payments per Eligibility Month with UCR Adjustment  
of UMWA-HRF Medicare Beneficiaries by State  
Fiscal Years 1988-1993



process that we followed assumed that the UCR adjustment was computed to adjust what the Funds allowed for the average claim down to the level that a Part B carrier would have allowed. Using the above UCR adjustment, we estimated the deductible and copayments that would have applied to each individual and report the remainder as the estimated Part B payment.

Following the above methodology, we estimated per capita Medicare Part B payments of \$87.79 per entitlement month in FY 1988 and \$91.15 per month in FY 1993, a 3.4 percent increase. Similar to allowed charges, estimated monthly per capita payments experienced an average annual increase of 8.2 percent in the three years prior to the demonstration, but then decreased annually by 10.6 percent during the demonstration. The contraction during the demonstration was driven by a 14.4 percent decrease in monthly per capita payments between fiscal years 1992 and 1993, after the implementation of the Medicare Fee Schedule. Monthly per capita Part B payments increased with the age of the beneficiary, as evidenced by the low of \$65.33 in FY 1993 for those less than 65 years of age and the high of \$103.22 for those 85 years of age and older (see Figure 5.7). The trend over time in estimated payments was relatively uniform across age groups.

Average monthly per capita estimated Medicare Part B payments were significantly ( $p < .05$ ) greater during the demonstration compared to the same payments during the pre-demonstration period. However, payments incurred after the Medicare Fee Schedule change were not significantly different from pre-demonstration estimated payments. When estimated payments were converted to constant 1993 dollars then payments after the Medicare Fee Schedule were significantly less than pre-demonstration payments while demonstration payments incurred prior to the fee schedule change were not significantly different from demonstration estimated payments.

Figures 5.8 and 5.9 compare estimated monthly Part B per capita payments by region and state, respectively. Figure 5.8 shows average monthly payments in the following four regions: Northeast, Midwest, South, and West. In all regions estimated payments initially increased until FY91 when they started a downward trend. In the South where Medicare beneficiaries are most prevalent, payments increased by 0.8 percent during the six-year study period. The Northeast, however, experienced the largest increase in estimated Part B payments

per capita (10.8 percent). Payments rose from an average of \$86.17 per month in FY 1988 to \$96.94 per month in FY 1993.

Figure 5.9 shows average estimated spending for the five states with the largest number of UMWA beneficiaries: West Virginia, Pennsylvania, Kentucky, Ohio, and Virginia. In addition to having the largest numbers of beneficiaries, West Virginia and Pennsylvania were the states with the highest estimated payments. Pennsylvania, the second most populous state, had a faster than average annual rate of growth in estimated payments. By FY 1993, Pennsylvania experienced a 10.5 percent increase, which resulted in an average monthly payment of \$96.94 in FY 1993. Figures 5.8 and 5.9 indicate that while the levels of charges varied across regions and states, changes in allowed charges were relatively uniform, particularly during the demonstration period.

## **5.2 PART B UTILIZATION**

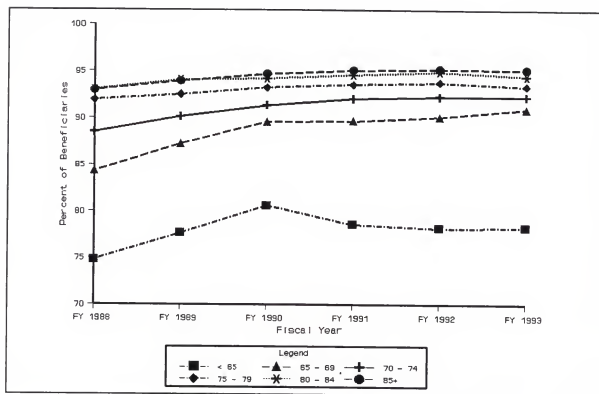
Our discussion has dealt either with allowed charges or estimated payments. These are both cost concepts that combine utilization and pricing decisions. Changes in these measures could reflect changes in utilization or changes in pricing policies or both. The data suggest that the changes were principally driven by changes in per unit charges. The demonstration appears to have had few impacts on utilization patterns while the change in the Medicare Fee Schedule was associated with small contractions in some measures of utilization.

While these small contractions do not constitute a finding, they do suggest that in some instances the reduction in prices and the subsequent decrease in utilization reflect a provider response. If initially excess services were supplied, then the fall in utilization will not affect health outcomes and we would expect more efficient delivery of medical services. If prior to the contraction utilization rates reflected medical need, then we would expect to see health outcomes fall and greater need for medical care in the future. In either case, our time series was not sufficiently long to detect changes in subsequent health outcomes.

### **Total Part B Services**

Broad measures of utilization showed relatively flat profiles over the six-year study period. Figure 5.10 presents the percentage of beneficiaries in each age cohort using any Medicare Part B services from FY 1988 through FY 1993. For beneficiaries as a whole,

**Figure 5.10**  
**Percentage of UMWA-HRF Medicare Beneficiaries**  
**Using Any Part B Services by Age**  
**Fiscal Years 1988-1993**



approximately 88 percent were Part B users in FY 1988, and 92 percent were Part B users in FY 1993, representing an increase of approximately 4 percentage points. Between fiscal years 1992 and 1993 the number of Part B users increased by less than 0.1 percentage point.

The percentage of users increased with age, but the trend over time was roughly the same across the age groups. Utilization increased prior to the demonstration, more so in the younger age groups, but was flat during the demonstration. Only those younger than 65 years showed a fall in use, but it occurred in the year prior to the demonstration. Relatively flat time trends were also observed across all geographic areas.

Tests of statistical significance between pre-demonstration and demonstration levels of utilization indicated that beneficiaries during the demonstration were significantly more likely to have used a Part B service compared to the pre-demonstration period. On average during the

three years prior to the demonstration 89.8 percent of beneficiaries used a Part B service in any year. During the demonstration the percentage increased to 92.2 percent, a 2.4 percentage point increase ( $p < .01$ ), prior to the fee schedule change, and to 91.8 percent, a 1.9 percentage point increase ( $p < .01$ ) after the change.

### **Physician Services**

The percentage of beneficiaries using Part B physician services increased by 4.7 percentage points over the six-year study period. Funds members were significantly ( $p < .01$ ) more likely to have used physician services during the demonstration period compared to the pre-demonstration period. The increase in utilization, however, occurred in the years prior to the demonstration. During the demonstration there was little growth in this measure in the overall population. Figure 5.11 illustrates these trends across the different age groups.

Alternatively, to evaluate changes in utilization we used data embodied in the Medicare Fee Schedule for physician work units and valued the physician services in our claims data at the relative work units included in the Fee Schedule. A relative value work unit is the total volume of physician services provided to beneficiaries expressed as an equivalent number of office visits using the Hsiao-study's measurement for the work involved in different physician services.

We discovered that 1.26 work units per person per entitlement month were provided in FY 1988 and 6.5 percent more work units were provided in FY 1993. The increase was driven by increases in the years prior to the demonstration. During the demonstration per capita physician work units annually decreased by 1.5 percent. Between FY 1992 and FY 1993 work units provided fell by 2.8 percent. Figure 5.12 shows these changes in physician utilization for the different age cohorts. Utilization for the youngest cohort (beneficiaries less than 65 years of age) decreased by approximately 5.5 percent over the six-year period. Across all age cohorts physician utilization dropped between fiscal years 1992 and 1993.

Those under the age of 65 and those 85 years of age and older experienced the largest falls in physician utilization in the last year of the demonstration. This differential decrease in utilization is disturbing given that the affected groups may have had a greater need for medical services. Those under 65 years of age frequently entered the program through participation in the federal disability program so that, relative to other individuals under 65 years of age, their medical care needs were greater. Those 85 years and older had relatively low

**Figure 5.11**  
**Percentage of UMWA-HRF Medicare Beneficiaries**  
**Using Any Part B Physician Services by Age**  
**Fiscal Years 1988-1993**

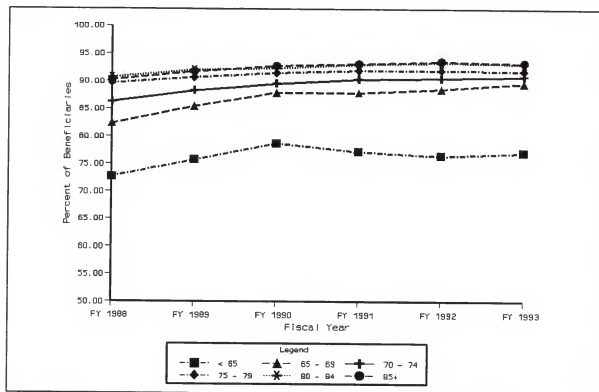
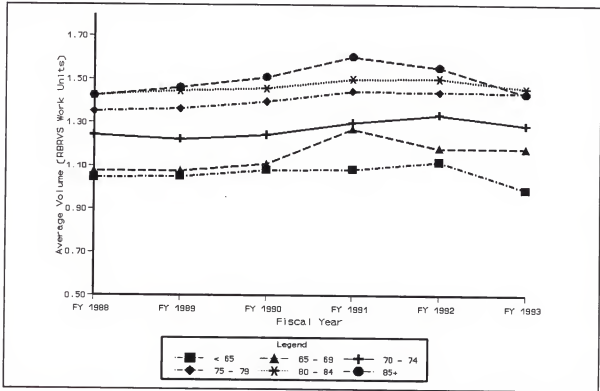




Figure 5.12

Average Volume of Medicare Part B Physician Services Valued in RBRVS Work Units per Eligibility Month of UMWVA-HRF Medicare Beneficiaries by Age Fiscal Years 1988-1993



levels of health due to their age. To the extent that these two groups make greater use of physician specialties, then these differential changes across age groups are consistent with the Medicare Fee Schedule which penalized specialty care relative to primary care services.

Figure 5.13 presents monthly per capita physician utilization by type of visit. Throughout the six-year study period office visits declined by 24.4 percent. This decline principally occurred between fiscal years 1988 and 1989. The time trends of other types of visits were flat over the six-year study. Figures 5.12 and 5.13 suggest that the small drop in physician utilization in the last year of the demonstration was broadly based across the various services (See Appendix Table 16).

Tests of statistically significant differences across the pre-demonstration and demonstration periods revealed that only work units associated with office visits were significantly different over the periods. During the three years prior to the demonstration average work units for office visits were 0.36. During the demonstration, but prior to the fee schedule change these work units fell to 0.34. The difference between these two periods was not significant. When only beneficiaries with office visits were analyzed the difference between these two periods was significant ( $p < .01$ ). After the fee schedule change work units for office visits were 0.30, a significant difference ( $p < .01$ ) of 0.06 work units between this later demonstration period and the pre-demonstration period. When the analysis was restricted to only beneficiaries with office services, average work units during the pre-demonstration period were 0.44, after the fee schedule change they were 0.36, a significant difference ( $p < .01$ ) of 0.08 work units.

### **Non-Physician Services**

The utilization of non-physician services steadily increased over the study period. Use of non-physician services increased from 52.6 percent of Funds members in FY 1988 to 62.9 percent by 1993. This steady growth resulted in significantly ( $p < .01$ ) more Funds members using non-physician services during the demonstration period compared to the pre-demonstration period. Figure 5.14 presents the percentage of Funds members who used non-physician services by age group. The percentage of users increased with age but the growth in use over the six years was in general uniform across the different age groups.

Figure 5.13

Average Volume of Medicare Part B Physician Services Valued in RBRVS Work Units  
per Eligibility Month of UMWA-HRF Medicare Beneficiaries by Type of Service  
Fiscal Years 1988-1993

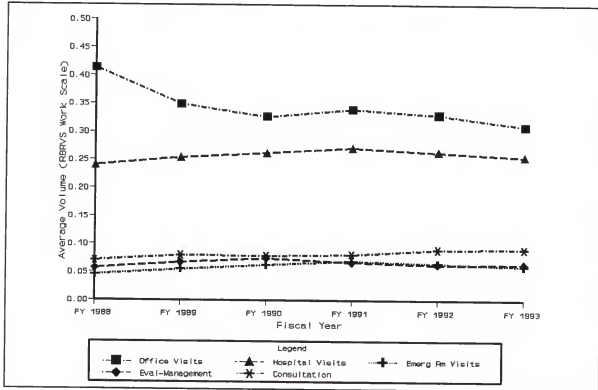
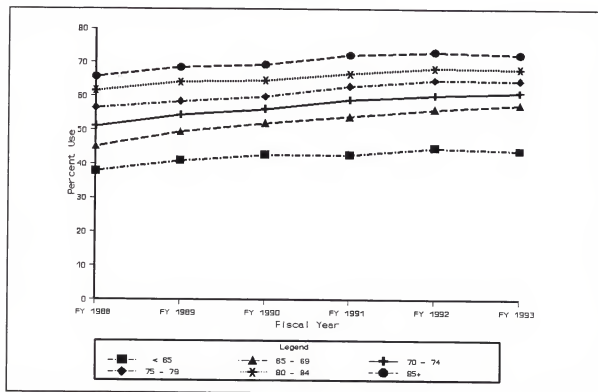


Figure 5.14  
 Percentage of UMWA-HRF Medicare Beneficiaries  
 Using Any Part B Non-Physician Services by Age  
 Fiscal Years 1988-1993



### 5.3 IMPACT OF FUNDS PRICING POLICIES

Our data facilitated an analysis of the impact of the Funds pricing policies during the six-year study period relative to the pricing policies that would have been followed by Medicare Part B Carriers. We estimated for each claim in the ALTA database the charges that would have been allowed by the Part B carrier serving the county in which the beneficiary resided. Thus, for each claim we examined the HCPCS code that appeared on the ALTA file and matched the code to the average allowed charge for the same HCPCS/CPT code as reported in the BMAD I files. Total allowed amounts for each line item were determined as the product of average allowed charges and the indicated number of units of service provided. Unlike the estimated payments reported in the previous section, this analysis was completed with information contained on each claim. We were aware of only one needed approximation. The procedure we followed to estimate the effect of the Funds pricing policies differs from the price that would have actually been allowed by a Medicare Part B carrier because pricing localities were determined by the location of the individual provider not the beneficiary. For most of the claims we examined, however, the locality for the beneficiary and the provider were the same. To estimate the amount that carriers would have allowed, we used average allowed charges reported in HCFA's BMAD I files.

We found differences between the Funds allowed amounts and average carrier allowed amounts that were substantially larger than the UCR adjustments associated with the Funds' use of the 85<sup>th</sup> percentile rather than the 75<sup>th</sup> percentile. These differences may be attributed to a variety of review processes in place for Medicare Part B carriers as compared to the ALTA review processes. We found in FY 1988 that the difference between the actual allowed charges and the allowed charges using carrier prices was 11.1 percent. By FY 1991 that gap had grown to 14.7 percent. However, in FY 1993, actual allowed charges were slightly less (0.9 percent less) than allowed charges using carrier prices.

Substantial regional and local differences between ALTA allowed charges and the estimated carrier allowed charges were evident during the pre-demonstration period. Figure 5.15 shows those regional differences. Prior to FY 1993 the biggest gaps were found in the South where the largest group of beneficiaries resided. The smallest gaps occurred in the

Midwest. In FY 1993 these gaps disappeared, in the Northeast and Midwest ALTA allowed charges were actually less than estimated carrier charges.

Figures 5.15 and 5.16 highlight the variability of prices across regions and states prior to the demonstration. They also show that the pricing policies of the demonstration not

**Figure 5.15**

**Percent Difference Between ALTA Allowed Charges and Estimated Carrier Allowed Charges of UMWA-HRF Medicare Beneficiaries by Census Region  
Fiscal Years 1988-1993**

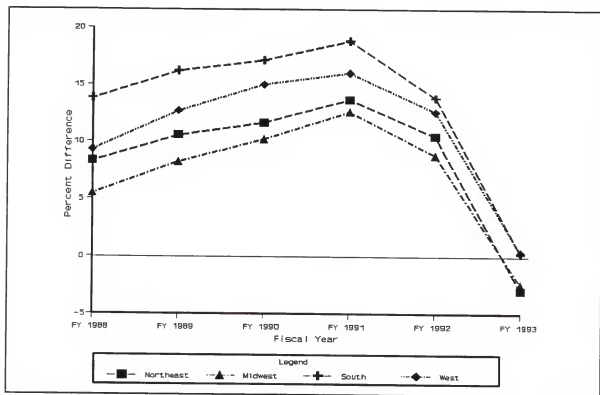
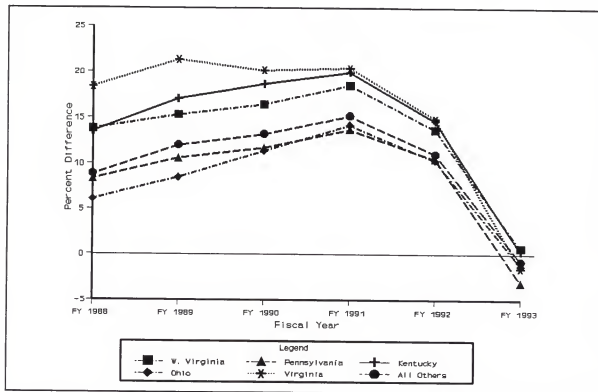


Figure 5.16

Percent Difference Between ALTA Allowed Charges and Estimated Carrier Allowed Charges of UMW-HRF Medicare Beneficiaries by Census Region  
Fiscal Years 1988-1993



only uniformly affected prices, but the policies were able to reduce the variance in prices. Figure 5.16 shows the differences by state for those states with the largest beneficiary populations. Until FY 1993 ALTA allowed charges were between 6.1 and 21.3 percent greater than estimated carrier charges. In FY 1993 the change in Funds pricing policies dissolved these gaps.

The comparison of ALTA allowed charges and what charges would have been if the pricing policies of Medicare Part B carriers had been used showed that prior to FY 1993, and the implementation of the Medicare Fee Schedule, ALTA pricing policies were generous relative to Part B carriers. This generosity resulted in HCFA payments that were larger than they would have been if Part B carrier pricing policies had been used. Table 5.1 presents total estimated payments for which HCFA was responsible, total estimated charges using Medicare Part B carrier pricing policies, which estimate what payments would have been in the absence of the demonstration, and the difference between the two estimates. Between fiscal years 1988 and 1991 HCFA's total estimated payments exceeded estimated allowed charges using Part B carrier prices by \$8 to \$14 million per year. During FY 1992 the difference was \$4.6 million. In FY 1993, when the Medicare Fee Schedule was implemented, HCFA's total estimated payments were \$1 million less than estimated allowed charges using Part B carrier prices.

Data were not available after FY 1993 and consequently we do not know if FY 1993 results indicate a permanent change resulting from a pricing policy change or a transitory change. If FY 1993 represents a permanent adjustment, then the prices HCFA faces when reimbursing for medical care provided to Funds members will be equivalent to, and perhaps less than, the prices charged by other Part B carriers.



**Table 5.1**

**Comparison of Total Estimated Medicare Part B Payments with UCR Adjustment and Total Estimated Carrier Allowed Charges of UMW health and Retirement Funds Medicare Beneficiaries**

**Fiscal Years 1988-1993**

<b>Total Estimated ALTA Part B Payments</b>	<b>FY 1988</b>	<b>FY 1989</b>	<b>FY 1990</b>	<b>FY 1991</b>	<b>FY 1992</b>	<b>FY 1993</b>
Estimated Unadjusted	\$126,150,640	\$140,061,733	\$147,944,126	\$155,234,634	\$139,879,056	\$104,389,633
Estimated UCR Adjusted	\$121,268,877	\$134,664,771	\$133,655,573	\$140,520,287	\$126,510,404	\$104,389,633
Estimated Carrier Adjusted	\$111,473,693	\$120,220,910	\$125,293,595	\$128,395,810	\$121,865,354	\$105,408,953
Difference UCR - Carrier Estimates	\$9,795,183	\$14,443,860	\$8,361,978	\$12,124,478	\$4,645,050	\$1,019,320

## **6.0 COST AND UTILIZATION OF MEDICARE PART A SERVICES AMONG UMWA HRF MEDICARE BENEFICIARIES**

Part A reimbursement and utilization patterns were examined to detect indirect demonstration impacts within these services. It was hypothesized that the demonstration and the Medicare Fee Schedule change introduced in 1992 may have indirectly affected Part A service utilization. As Part B allowed charges were adjusted, providers may have substituted between Part A and Part B services. The claims data did not suggest that this substitution occurred. Further analysis of this question is presented in the chapter dealing with acute myocardial infarction.

### **PART A REIMBURSEMENTS**

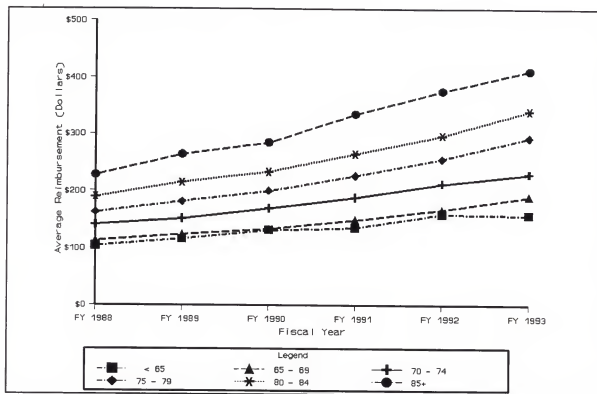
Unlike Part B spending, Part A reimbursements climbed steadily throughout the six-year period. The average annual increase in monthly per capita Part A reimbursements was approximately 13 percent. Average monthly per capita Part A reimbursement grew from \$151 in FY 1988 to \$277 in FY 1993. Figure 6.1 shows the growth in Part A reimbursements by age group. The level of spending was positively associated with age but year-to-year growth rates were relatively uniform across age groups. The growth in Part A reimbursements, however, varied across regions (see Figure 6.2). Reimbursements in the Midwest showed the smallest amount of growth, between 2 and 17 percent per year. Conversely, reimbursements in the Northeast showed growth rates as high as 25 percent, over the six-year period reimbursements more than doubled in this region. Differences in growth patterns resulted in increased variation in reimbursements across the four regions. The increased variation was driven by the divergence between average reimbursements in the Northeast and the other regions.

Statistical tests of significance showed that monthly per capita Part A reimbursements were significantly higher during the demonstration period, however, much of this difference was attributable to an increase in medical prices. During the three years prior to the demonstration the average monthly per capita Part A reimbursement was \$162. During the demonstration period, but prior to the change in the Medicare Fee Schedule in 1992, Part A reimbursements

were significantly greater at \$232 ( $p < .01$ ).<sup>1</sup> After the change in the Fee Schedule, monthly per capita Part A reimbursements grew to \$272 ( $p < .01$ ). When reimbursements were converted to constant 1993 dollars differences between periods were no longer statistically significant.

Figure 6.1

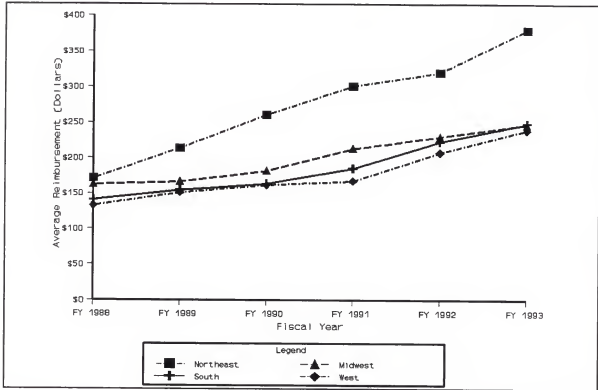
Average Medicare Part A Reimbursements per Eligibility Month  
of UMWA-HRF Medicare Beneficiaries by Age  
Fiscal Years 1988-1993



<sup>1</sup>All power tests were two-tailed tests.

Figure 6.2

**Average Medicare Part A Reimbursements per Eligibility Month  
of UMWA-HRF Medicare Beneficiaries by Census Region  
Fiscal Years 1988-1993**



During the pre-demonstration years monthly per capita Part A reimbursements were \$220 in 1993 dollars. During the demonstration they were \$256 prior to the fee schedule change and \$272 after the change.

Part A reimbursements were extremely variable, in any given year many beneficiaries did not use a Part A service and among users of Part A services, reimbursements were skewed. To control for some of the variability we compared differences across periods within the group of beneficiaries who used Part A services. The same patterns were seen. Actual reimbursements during the demonstration were significantly different from pre-demonstration reimbursements, but monthly per capita reimbursements in constant 1993 dollars were not significantly different across the pre-demonstration and demonstration periods.

Part A reimbursements covered expenses associated with stays in inpatient settings, skilled nursing facilities (SNF), and home health and hospital outpatient services. Average monthly per capita reimbursements in each service category steadily increased during the six-year study period (See Figure 6.3). The data presented below did not indicate that reimbursements in any particular category experienced a measurable change in level or in growth attributable to the demonstration.

Average monthly per capita reimbursements for inpatient short stays climbed steadily throughout the six-year period, from \$135.04 in FY 1988 to \$215.20 in FY 1993. Figure 6.4 illustrates the growth in reimbursements for short stays across age groups. Differences in monthly per capita short stay reimbursements between the pre-demonstration and demonstration periods were statistically significant ( $p < .05$ ), even when the comparison was restricted to only users of short stay services. During the three years prior to the demonstration average monthly per capita reimbursements for short stays were \$142 (\$564 among beneficiaries with any short stay admission), during the demonstration and prior to the Medicare Fee Schedule change short stay reimbursements were \$189 (\$727 among those with any short stay admission), after the fee schedule change they climbed to \$208 (\$809 among those with any short stay admission). When reimbursements were valued in constant 1993 dollars there were no significant differences in reimbursements between the pre-demonstration and demonstration periods.

Average monthly per capita reimbursements for SNF admissions grew from \$1.54 in FY 1988 to \$9.63 in FY 1993. Growth was substantial among Funds members 75 years of age and older (see Figure 6.5). The level of spending was positively associated with age, and

Figure 6.3

Average Medicare Inpatient Short Stay Reimbursements per Eligibility Month  
of UMWA-HRF Medicare Beneficiaries by Type of Service  
Fiscal Years 1988-1993

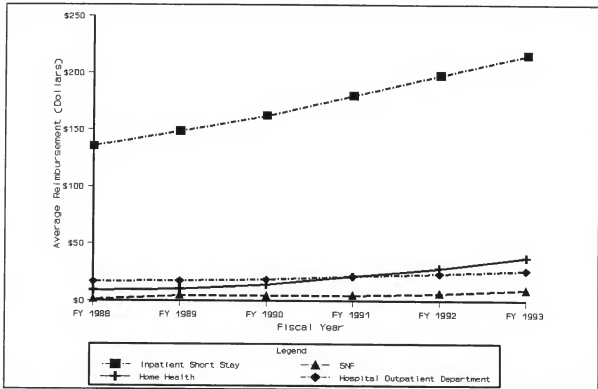


Figure 6.4

Average Medicare Inpatient Short Stay Reimbursements per Eligibility Month  
of UMWA-HRF Medicare Beneficiaries by Age  
Fiscal Years 1988-1993

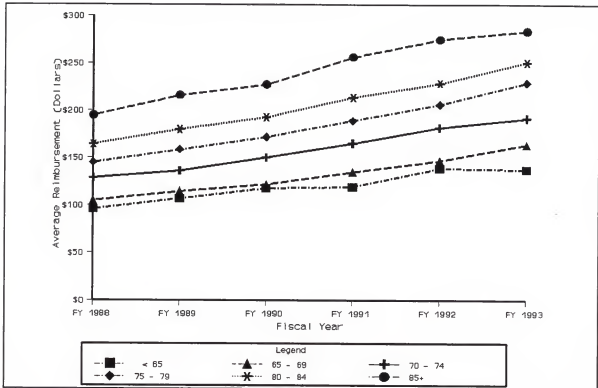
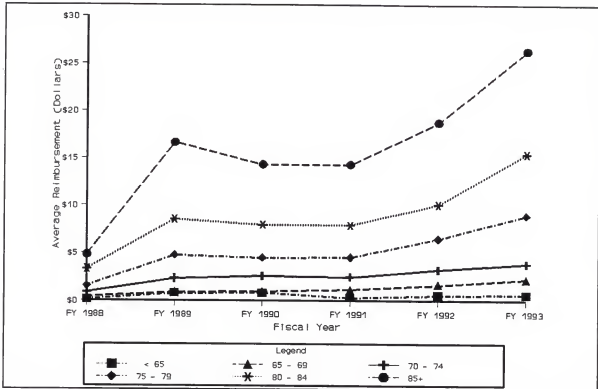


Figure 6.5

**Average Medicare SNF Reimbursements per Eligibility Month  
of UMW-HRF Medicare Beneficiaries by Age  
Fiscal Years 1988-1993**



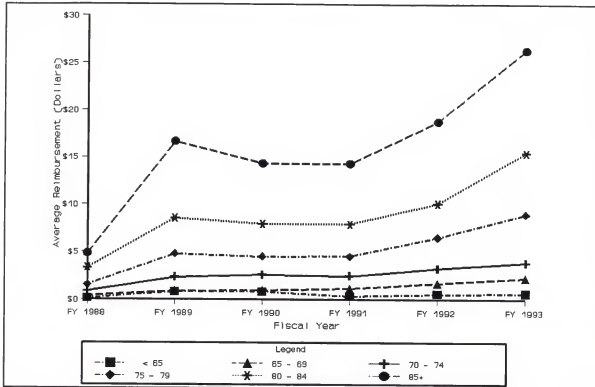
those over 84 years of age had rates of reimbursements that were twice those of the next youngest age group. The growth in SNF reimbursements was relatively constant across regions, but the level varied from \$6.50 in the South to \$19.43 in the West in FY 1993. Despite the growth in monthly per capita SNF reimbursements, SNF reimbursements in the post-demonstration periods were not statistically different from SNF reimbursements in the pre-demonstration period, even when the analysis was restricted to only users of SNF services.

Average monthly per capita reimbursements for home health services grew from \$9.28 in FY 1988 to \$37.62 in FY 1993. The rate of growth was higher during the demonstration as compared to the prior years. Figure 6.6 illustrates this growth across the



Figure 6.6

**Average Medicare Home Health Reimbursements  
per Eligibility Month of UMWA-HRF Medicare Beneficiaries by Age  
Fiscal Years 1988-1993**



different age groups. During the pre-demonstration period average monthly per capita home health reimbursements were \$13.52. During the demonstration reimbursements were significantly higher at \$34.28 prior the implementation of the Medicare Fee Schedule and \$50.70 after the Medicare Fee Schedule change ( $p < .01$  respectively). Significant differences were evident when the analysis was restricted to only users of home health services or when reimbursements were valued in constant 1993 dollars. However, when reimbursements in constant 1993 dollars among only users of home health services were considered, they were found to be statistically insignificant between the two periods.

The last category of reimbursements to be considered are for services rendered in hospital outpatient departments. Under some circumstances outpatient services may reasonably substitute for physician services. If substitution between services occurred as a result of the demonstration or changes in the Medicare Fee Schedule through impacts on physician services, then we would be more likely to see this substitution in the form of changing use of outpatient services. Figure 6.7 presents outpatient reimbursements for Funds members by age group.

Monthly per capita reimbursements for outpatient services grew throughout the six-year period. From FY 1988 through FY 1993 reimbursements for outpatient services increased from \$16.88 to \$26.42. Growth rates were higher during the demonstration years, 11.5 percent average annual growth, compared to the annual average growth of 5.1 percent during pre-demonstration years. Regional variations were evident. The West experienced the lowest rates of growth, and the South the highest. Again, the highest level of monthly per capita reimbursements were in the Northeast where reimbursements ranged from \$19.74 in FY 1988 to \$30.46 in FY 1993.

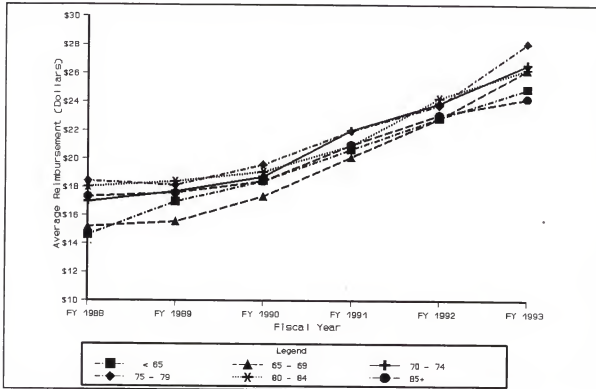
Despite the growth in Part A outpatient reimbursements, reimbursements incurred during the demonstration period prior to the Medicare Fee Schedule change were not significantly different from reimbursements during the pre-demonstration period. After the fee schedule change reimbursements were significantly greater than reimbursements during the pre-demonstration period (\$27.96 compared to \$17.39,  $p < .05$ ). However, when the analysis was restricted to only users of outpatient services or when reimbursements were converted to constant 1993 dollars there were no significant differences between outpatient reimbursements incurred during the pre-demonstration or demonstration periods.

## **PART A UTILIZATION**

As indicated in the previous section, reimbursements encompassed both measures of utilization and prices. The data presented in this section indicated that utilization of Part A services grew steadily throughout the six years. The pace of growth during the demonstration, however, was similar to the pace of growth in the pre-demonstration period.

Figure 6.7

**Average Medicare Hospital Outpatient Department Reimbursements  
per Eligibility Month of UMWA-HRF Medicare Beneficiaries by Age  
Fiscal Years 1988-1993**



The percentage of Funds members using Part A services increased from 28.5 percent in FY 1988 to 31.3 percent in FY 1993. Figure 6.8 presents the percentage of Part A users by age group. Despite the relatively small change in the percentage of users, Part A utilization was significantly higher during the demonstration years ( $p < .01$ ) compared to the pre-demonstration period. The increase in Part A use was partially in response to the increasing average age of Funds members. Figure 6.8 illustrates that over the six-year study period the percentage of Part A users was relatively constant within age-groups. Only those members 85 years of age and older showed an upward trend in use from 42.4 percent in FY 1988 to 47.0 percent in FY 1993.

Part A use covered hospital and SNF admissions, and home health and hospital outpatient visits. Figure 6.9 shows the percentage of Funds members who used each type of

Figure 6.8

Percentage of UMWA-HRF Medicare Beneficiaries with  
Any Part A Use by Age  
Fiscal Years 1988-1993

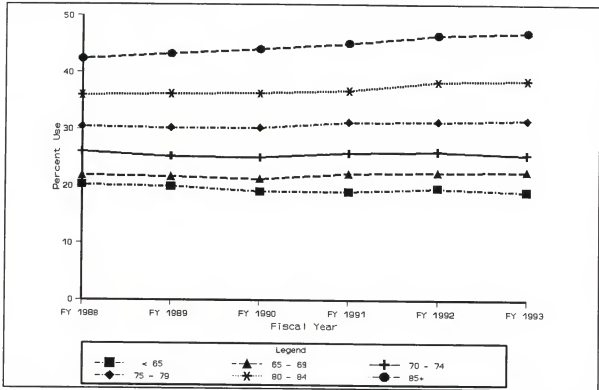
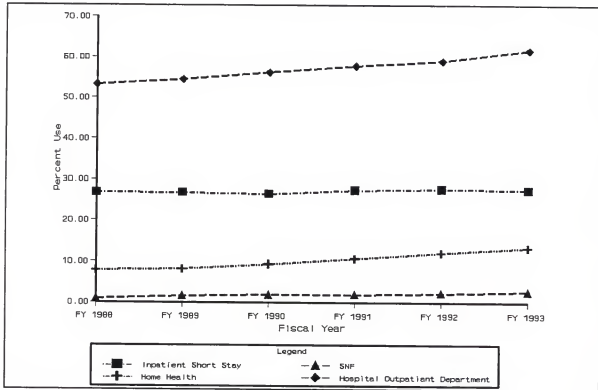


Figure 6.9

Percentage of UMWA-HRF Medicare Beneficiaries with  
Any Part A Use by Type of Service  
Fiscal Years 1988-1993



service. Figures 6.10 through 6.13 present the percentage of hospital, SNF, and home health and hospital outpatient department users respectively by age group over the six years. The percentage of members with an inpatient short stay increased slightly from 26.8 percent in FY 1988 to 27.4 percent in FY 1993. When considered across the different age groups the incidence of inpatient short stays was relatively constant throughout the six-year period.

**Figure 6.10**

**Percentage of UMWA-HRF Medicare Beneficiaries  
with Any Inpatient Short Stay Use by Age  
Fiscal Years 1988-1993**

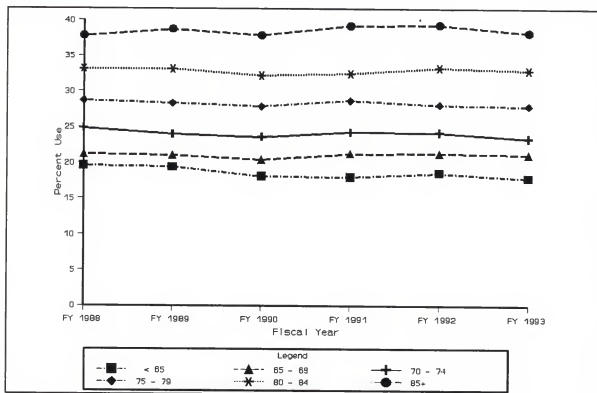
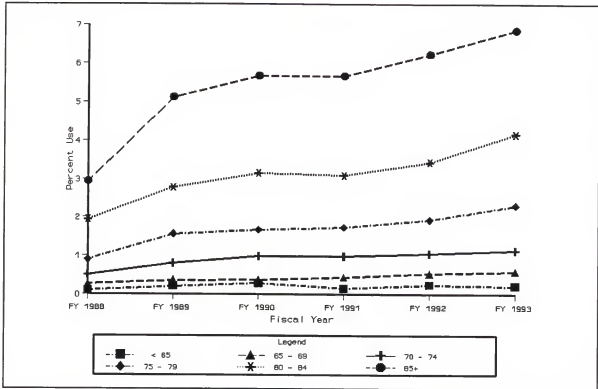


Figure 6.11

Percentage of UMWA-HRF Medicare Beneficiaries with Any SNF Use by Age  
Fiscal Years 1988-1993



The percentage of Funds members with any SNF admission grew steadily from 0.9 percent in FY 1988 to 2.6 percent in FY 1993. Figure 6.11 indicates that the use of any SNF service increased with age, but the growth in use was concentrated within Funds members 75 years of age and older. During the demonstration period Funds members were significantly ( $p < .01$ ) more likely to have had a SNF admission compared to the pre-demonstration period. Among users of SNF services the intensity of use, the number of SNF admissions and SNF covered days per eligibility month, was not significantly different between the pre-demonstration and demonstration periods.

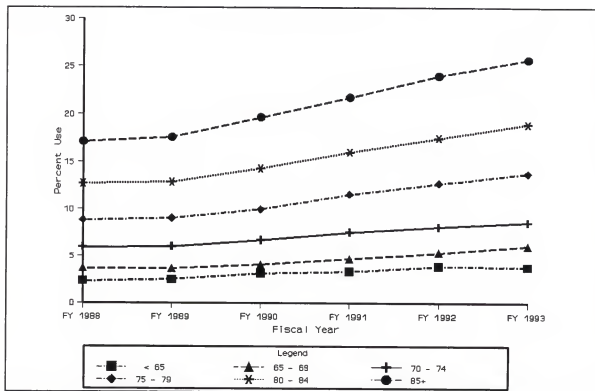
Growth in the incidence of home health service use increased considerably during the six-year study period. Home health services were used by 7.7 percent of Funds members

in FY 1988, by FY 1993 the percentage was 13.2. Growth was slightly faster during the demonstration period. Use of home health services increased with the member's age as Figure 6.12 indicates. By FY 1993 approximately 26 percent of Funds beneficiaries 85 years of age and older used home health services. The differences between pre-demonstration and demonstration periods in the utilization of home health services was significant ( $p < .01$ ) and carried over to the intensity of service use. During the three years prior to the demonstration members had 0.22 home health visits per eligibility month. During the demonstration, but prior to the Medicare Fee Schedule change, the number of home health visits increased to 0.53 per eligibility month, after the Medicare Fee Schedule change members had 0.74 visits per eligibility month.

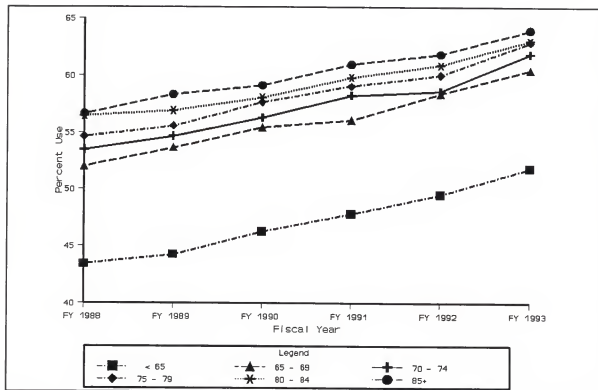
The percentage of Funds members who used outpatient services climbed steadily through the six-year study period. While the data are consistent with the hypothesis that providers and insurers responded to the demonstration by substituting Part A outpatient services for Part B services, the evidence does not support a finding that services were actually substituted across the two groups. Use of hospital outpatient services grew from 53.2 percent of Funds members in FY 1988 to 61.2 percent in FY 1993. During the pre-demonstration period the annual percentage point increase in use averaged 1.5 points, during the demonstration the average increase was 1.9 percentage points. Between fiscal years 1992 and 1993 use increased by 2.7 percentage points, which is suggestive of a substitution effect. During the demonstration period Funds members were significantly ( $p < .01$ ) more likely to have used hospital outpatient services compared to the pre-demonstration period. Figure 6.13 presents this growth by age group. The level of use increased with age. There was a dramatic increase in use after the age of 65, but growth rates within an age group over the six years were uniform across the age groups.



**Figure 6.12**  
**Percentage of UMWA-HRF Medicare Beneficiaries**  
**with Any Home Health Use by Age**  
**Fiscal Years 1988-1993**



**Figure 6.13**  
**Percentage of UMWA-HRF Medicare Beneficiaries**  
**with Any Hospital Outpatient Department Use by Age**  
**Fiscal Years 1988-1993**



## **7.0 COMPARISON OF COST AND UTILIZATION OF MEDICARE SERVICES BETWEEN MALE UMWA HRF MEDICARE BENEFICIARIES WITH AND WITHOUT DEPARTMENT OF LABOR BLACK LUNG BENEFITS**

In this section we compare male Funds beneficiaries with and without Department of Labor (DOL) Black Lung benefits. This comparison of subgroups within the population of Funds beneficiaries allowed us to identify different trends in the Funds population that were at work during the six-year study period. This comparison also facilitated an analysis of how the demonstration affected Funds members with different levels of health. Presumably men with Black Lung benefits had lower levels of health relative to men without Black Lung benefits. The discussion that follows focuses on the differences between male Funds members and how these different groups of men were affected by the demonstration.

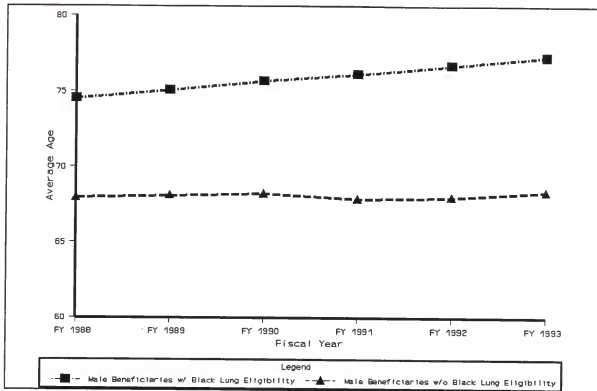
The data did not suggest that the demonstration was associated with any significant changes in the costs and utilization of Medicare services by male Funds members. The data presented below indicated that men with Black Lung benefits saw their Part B allowed charges (total and physician charges, but not non-physician charges) fall in real terms after the Medicare Fee Schedule change. This drop was not seen among men without Black Lung benefits (and we did not see a significant decline in real allowed charges among female Funds members, however their allowed physician charges significantly fell in real terms after the implementation of the Medicare Fee Schedule). These changes resulted in reductions in the difference in charges between these two groups of men. The data did not indicate that a change in utilization accompanied the implementation of the Medicare Fee Schedule.

### **HEALTH INDICATORS: AGE AND MORTALITY**

Men with DOL Black Lung benefits were older than other male Funds members. Figure 7.1 shows a widening gap over the study period in the average ages of male Funds members with Black Lung and those without Black Lung benefits. In FY 1988 men with Black Lung benefits were 6.6 years older than other male Funds members, by FY 1993 this difference had grown to 8.9 years. The differential in age was presumably reflected in slightly lower levels of health and higher health care costs among male Funds members with Black Lung benefits.

Figure 7.1

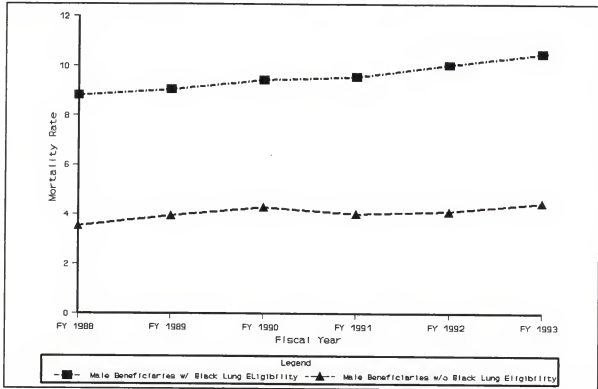
**Average Age of Male Beneficiaries by  
Receipt of Black Lung Benefits  
Fiscal Year 1988-1993**



Mortality data, presented in Figure 7.2, showed that over the six years the incidence of mortality was slightly higher and increased faster among male Funds members with Black Lung benefits. The difference in mortality rates between male Funds members with and without Black Lung benefits increased from 5.3 percentage points in FY 1988 to 6.0 percentage points in FY 1993. Gender-specific death analyses confirmed that the survival rate was longer among men without Black Lung benefits and that both age and the receipt of Black Lung benefits significantly increased a man's probability of death in any given year.

Figure 7.2

**Mortality Rate of Male Beneficiaries by  
Receipt of Black Lung Benefits  
Fiscal Year 1988-1993**



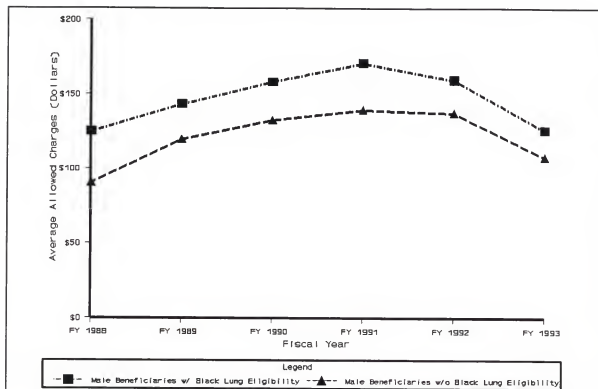
**PART B ALLOWED CHARGES**

As seen in the overall population of Funds members, the demonstration was not associated with any measurable change in the level or growth of Part B allowed charges incurred by male Funds members regardless of the receipt of Black Lung benefits. The change in the Medicare Fee Schedule, however, was associated with a fall in real terms in Part B allowed charges among men with Black Lung benefits.

Figure 7.3 shows average monthly per capita Part B allowed charges for male Funds members by receipt of Black Lung benefits throughout the six-year study period. Among male Funds members with Black Lung benefits average monthly per capita Part B allowed charges

Figure 7.3

Average Medicare Part B Allowed Charges per Eligibility Month by  
Receipt of Black Lung Benefits  
Fiscal Years 1988-1993



increased during the three years prior to the demonstration from \$124.59 in FY 1988 to \$170.83 in FY 1991. During the demonstration period Part B allowed charges fell, particularly between fiscal years 1992 and 1993 when they fell by 21.1 percent. By FY 1993 average allowed charges among male Funds members with Black Lung were \$125.73. The difference between average allowed charges incurred by these men during the pre-demonstration period and both demonstration periods were not significant. However, allowed charges (converted to constant 1993 dollars) incurred after the Medicare Fee Schedule change were significantly ( $p < .05$ )<sup>1</sup> less than charges incurred during the three years prior to the demonstration, even when the analysis

<sup>1</sup>All tests were two-tailed tests.

was restricted to only users of Part B services. During the pre-demonstration period average allowed charges in constant 1993 dollars were \$180.03. In the period following the Medicare Fee Schedule change these same charges were \$120.44. Allowed charges in constant 1993 dollars were not significantly different across the pre-demonstration period and demonstration period prior to the Medicare Fee Schedule change. Therefore, in real terms, the Medicare Fee Schedule change was associated with a significant contraction of average monthly per capita Part B allowed charges among men with Black Lung benefits.

Among male Funds members without Black Lung benefits average monthly per capita Part B allowed charges increased from \$90.29 in FY 1988 to \$139.55 in FY 1991. Allowed charges then fell to \$107.66 in FY 1993. Allowed charges during the demonstration periods were not significantly different from allowed charges during the pre-demonstration period, even when the analysis was restricted to only users of Part B services or when allowed charges were converted to constant 1993 dollars.

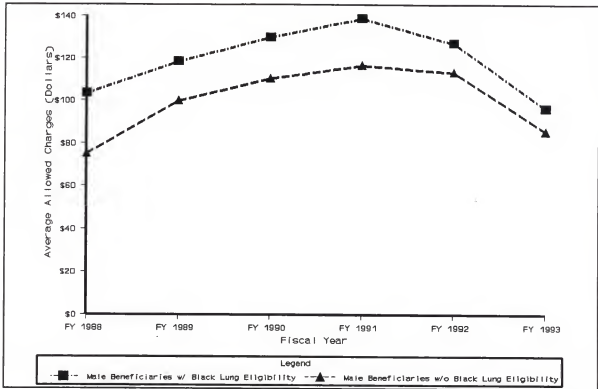
Over the study period male Funds members with Black Lung benefits had monthly per capita Part B allowed charges that were greater than those of male Funds members without these benefits. The difference in allowed charges was not significant in any period and it fluctuated between \$22 and \$34. In FY 1993 the difference was only \$18.07 which suggested that one result of the demonstration and the fee schedule change was an increased uniformity of allowed charges across the two groups of men.

Monthly per capita Part B allowed physician charges reflected the same patterns as those seen in total Part B allowed charges. The change in the Medicare Fee Schedule was associated with a fall in real terms in allowed physician charges incurred by men with Black Lung benefits. Figure 7.4 presents the trends in average monthly per capita Part B allowed physician charges for male Funds members by receipt of Black Lung benefits.

Among male Funds members with Black Lung benefits Part B allowed physician charges increased from \$103.49 in FY 1988 to \$138.85 in FY 1991, physician charges then fell to \$96.29 in FY 1993. The differences between pre-demonstration and demonstration allowed physician charges were not significant, even when the analysis was restricted to only users of physician services. When allowed physician charges were converted to constant 1993 dollars, the difference in charges between the pre-demonstration period and the demonstration period

Figure 7.4

**Average Medicare Part B Allowed Physician Charges per Eligibility Month by  
Receipt of Black Lung Benefits  
Fiscal Years 1988-1993**



prior to the Medicare Fee Schedule change was not significant. After the fee schedule change allowed physician charges in constant 1993 dollars were significantly less ( $p < .01$ ) than the same charges incurred during the pre-demonstration period (during the pre-demonstration period average allowed physician charges in constant 1993 dollars were \$149.64, during the period after the fee schedule change these same charges were \$89.95). Part B allowed physician charges incurred by male Funds members with Black Lung benefits experienced a significant fall in real terms after the fee schedule change.

Among male Funds members without Black Lung benefits monthly per capita Part B allowed physician charges increased from \$75.19 in FY 1988 to \$116.65 in FY 1991 and then fell to \$85.42 in FY 1993. Allowed physician charges during the demonstration period were not significantly different from charges in the pre-demonstration period, even when the analysis



was restricted to only users of physician services. Unlike the allowed physician charges incurred by men with Black Lung, when allowed physician charges incurred by men without Black Lung were converted to constant 1993 dollars there was no significant difference between the average level of allowed charges during the pre-demonstration period and the level of charges during the demonstration periods. This implies that in real terms, allowed physician charges incurred by men without Black Lung were not affected to the same extent as allowed physician charges incurred by men with Black Lung.

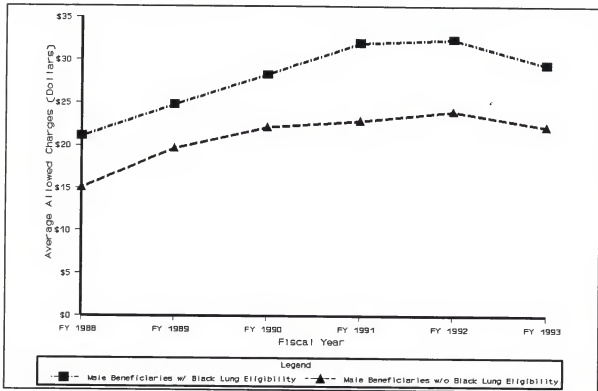
Over the study period male Funds members with Black Lung benefits consistently incurred greater monthly per capita Part B allowed physician charges compared to men without Black Lung benefits, but the differences were never significant. Over time the difference in charges narrowed. The difference in charges across the two groups of men was \$28.30 in FY 1988, \$22.20 in FY 1991, and \$10.87 in FY 1993.

Monthly per capita Part B allowed non-physician charges followed patterns similar to total Part B allowed charges and allowed physician charges. Figure 7.5 presents allowed non-physician charges for male Funds members by receipt of Black Lung benefits over the study period. Among male Funds members with Black Lung non-physician charges steadily increased until FY 1993 when they fell by 9.1 percent. In FY 1988 average allowed non-physician charges were \$21.10, in FY 1992 they were \$32.40, and then in FY 1993 they fell to \$29.44. Differences in pre-demonstration and demonstration allowed non-physician charges were not statistically significant.

Allowed non-physician charges incurred by male Funds members without Black Lung benefits increased, from \$15.10 in FY 1988 to \$23.98 in FY 1992, in FY 1993 they fell slightly to \$22.24. As seen among men with Black Lung, allowed non-physician charges incurred by men without these benefits were not significantly different between the pre-demonstration and demonstration periods. Similar to other Part B allowed charges, male Funds members with Black Lung benefits consistently had non-physician charges that were greater than those of other male Funds members. The difference, however, was never significant.

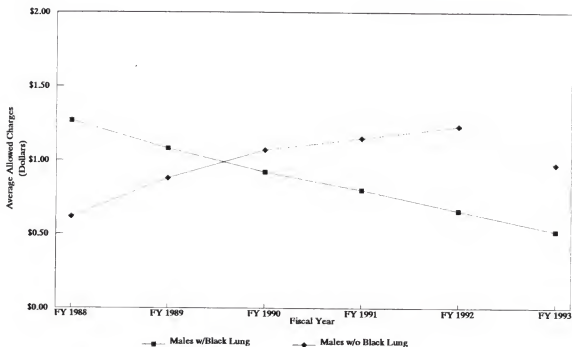
Figure 7.5

Average Medicare Part B Allowed Non-Physician Charges per Eligibility Month by  
Receipt of Black Lung Benefits  
Fiscal Years 1988-1993



Monthly per capita Part B allowed oxygen charges followed slightly different patterns relative to other Part B allowed charges. Figure 7.6 illustrates the trends in allowed Part B and DOL oxygen charges for male Funds members by receipt of Black Lung benefits. Allowed Part B oxygen charges for men with Black Lung steadily decreased, from \$1.27 in FY 1988 to \$0.52 in FY 1993. Their DOL allowed charges, however, increased from \$6.33 in FY 1988 to \$8.82, an increase of 39.3 percent. DOL allowed charges experienced more variability over the 6 year study period. Charges increased steadily until FY 1991 when they fell by 48.2 percent. In FY1992, charges recovered, they then fell slightly in FY 1993. Despite the contraction in Part B allowed oxygen charges, these charges were not significantly different between the pre-

**Figure 7.6**  
**Average Medicare Part B Allowed Charges and DOL Reimbursements**  
**for Oxygen Services per Eligibility Month by Receipt of Black Lung Benefits**  
**Fiscal Years 1988 – 1993**



demonstration and demonstration periods, even when the analysis was restricted to only users of oxygen services or charges were converted to constant 1993 dollars.

Among male Funds members without Black Lung benefits monthly per capita allowed oxygen charges steadily increased from \$0.62 in FY 1988 to \$1.23 in FY 1992. In FY 1993 these charges fell by 21.1 percent to \$0.97. Like the oxygen charges of men with Black Lung, allowed oxygen charges incurred by men without Black Lung were not significantly different across the pre-demonstration and demonstration periods.

As in the analysis of the full population of Funds members, estimated Medicare Part B payments for which HCFA was responsible were determined and analyzed among male Funds member by receipt of Black Lung benefits. Figure 7.7 presents estimated Part B payments for male Funds members by receipt of Black Lung benefits. Among men with Black Lung estimated Part B payments increased from \$91.55 in FY 1988 to \$118.78 in FY 1991 they then fell to \$94.36 in FY 1993. Among these men estimated Part B payments were not significantly different between the pre-demonstration and demonstration periods. When estimated payments were converted to constant 1993 dollars payments incurred after the Medicare Fee Schedule change were significantly ( $p < .05$ ) less than those incurred during the pre-demonstration period. The estimated Part B payments of men without Black Lung increased from \$66.02 in FY 1988 to \$96.64 in FY 1991, they then fell to \$80.48 in FY 1993. Among these men estimated Part B payments were never significantly different between the pre-demonstration and demonstration periods. The difference in estimated payments between men with and without Black Lung was \$25.52 in FY 1988. In FY 1993 the difference was \$13.88. The difference in estimated payments between these two groups of men were not significant.

## **PART B UTILIZATION**

Allowed charges incorporate concepts of utilization and price. In this section we examine the differences in broad measures of Part B utilization between male Funds members by receipt of Black Lung benefits. The data indicated that after the change in Medicare Fee Schedule there were few significant changes in the levels or growth of Part B utilization.

Figure 7.7

**Estimated Medicare Part B Payments per Eligibility Month  
with UCR Adjustment by Receipt of Black Lung Benefits  
Fiscal Years 1988-1993**

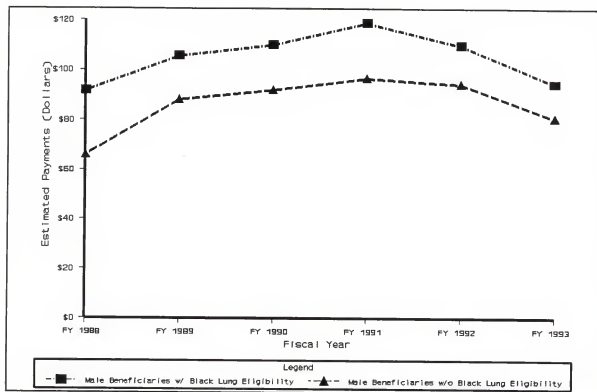


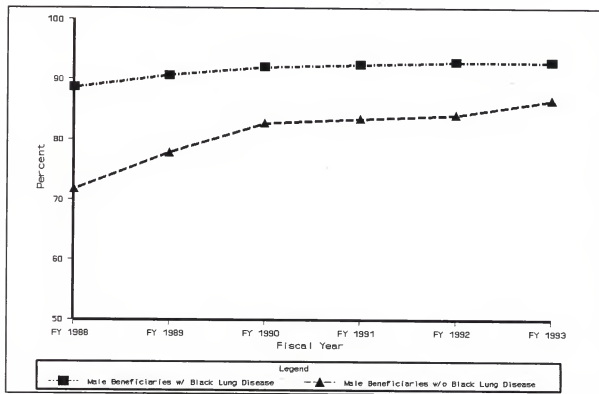
Figure 7.8 illustrates the trend in the percentage of male Funds members using Part B services over the six years by receipt of Black Lung benefits. The percentage using Part B services increased among male Funds members with Black Lung, from 88.7 percent in FY 1988 to 92.9 percent during fiscal years 1992 and 1993. This growth resulted in a significant ( $p < .01$ ) difference across the pre-demonstration period and demonstration period prior to the implementation of the Medicare Fee Schedule in the percentage of Part B users among men with Black Lung. The percentage of men with Black Lung who used Part B services after the fee schedule change was not significantly different from the same percentage during the pre-demonstration period.

Among male Funds members without Black Lung benefits the percentage using Part B services increased steadily from 71.7 percent in FY 1988 to 84.1 percent in FY 1992. In FY 1993 use increased to 86.5 percent. Men without Black Lung were significantly ( $p < .01$ ) more likely to have used a Part B service during both demonstration periods compared to the pre-demonstration period.

Throughout the six years men with Black Lung benefits were significantly ( $p < .01$ ) more likely to have used a Part B service relative to men without Black Lung. In FY 1988, the

**Figure 7.8**

**Percentage of Male Beneficiaries  
Using Any Part B Services by Receipt of Black Lung Benefits  
Fiscal Years 1988-1993**

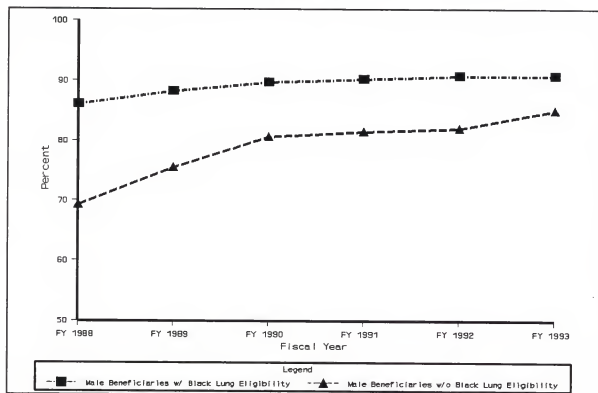


difference in the percentage of men who used a Part B service was 17 percentage points, by FY 1993 this difference had fallen to 6.3 percentage points.

Figure 7.9 illustrates the percentage of men using Part B physician services. The percentage of men with Black Lung benefits using Part B physician services grew from 86.1 percent in FY 1988 to 90.8 percent in FY 1993. Use of Part B physician services was significantly ( $p < .01$ ) different across the pre-demonstration and demonstration periods. Among men without Black Lung the use of Part B physician services was also significantly different across the pre-demonstration and demonstration periods. Among these men the percentage using physician services increased from 69.3 percent in FY 1988 to 85.0 percent in FY 1993. Among women this measure of physician utilization dropped during the last year of the study period.

**Figure 7.9**

**Percentage of Male Beneficiaries  
Using Any Part B Services by Receipt of Black Lung Benefits  
Fiscal Years 1988-1993**

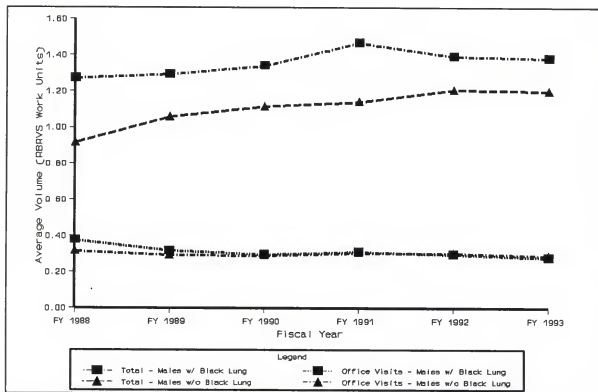


Utilization of physician services was also evaluated using the relative value of the

work units embodied in different physician services. Figure 7.10 shows the volume of total physician services and those services associated with office visits for male Funds members by receipt of Black Lung benefits. Among men with Black Lung the average volume of physician services increased by 2.7 percent during the pre-demonstration period. During the demonstration period the volume fell by 2.9 percent. Among these men the total volume of physician services was not significantly different between the pre-demonstration and demonstration periods. Among men without Black Lung the differences in the volume of total

**Figure 7.10**

**Volume of Part B Physician Services Valued in RBRVS Work Units per Eligibility Month by Receipt of Black Lung Benefits  
Fiscal Years 1988-1993**



physician services and services for office visits across the pre-demonstration and demonstration periods were also not significant despite a 31 percent increase in the total volume of services over the six years.



In any given year men with Black Lung benefits had a greater volume of physician work units compared to other male Funds members. The difference in work units, which were never significant, decreased over the study period from a difference of 0.36 units in FY 1988 to 0.18 units in FY 1993.

The percentage of men who used Part B non-physician services increased steadily throughout the six-year study period. This growth resulted in a significant ( $p < .01$ ) increase in the percentage of men who used Part B non-physician services. Among men with Black Lung benefits 52.8 percent used non-physician services in FY 1988, by FY 1993 this percentage had grown to 64.9 percent. Among men without Black Lung fewer used these services, but the growth in use was similar. The use of non-physician services grew from 38.1 percent in FY 1988 to 54.1 percent in FY 1993.

#### **PART A REIMBURSEMENTS**

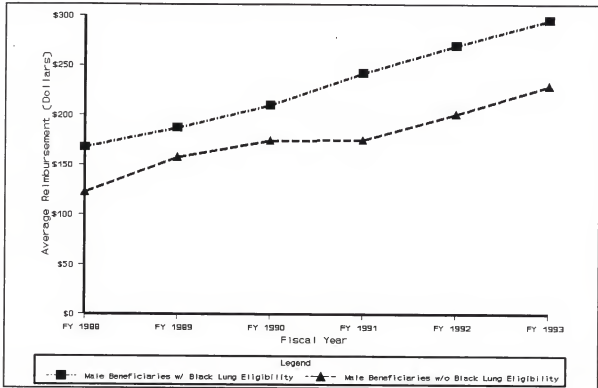
Monthly per capita Part A reimbursement and utilization data suggested that while Part A reimbursements among male Funds members grew over the study period this growth did not result in significantly higher reimbursements during the demonstration period. Figure 7.11 presents monthly per capita Part A reimbursements for male Funds members by receipt of Black Lung benefits. Part A reimbursements among men with Black Lung grew by 76 percent from \$167.59 in FY 1988 to \$295.29 in FY 1993. Despite this growth monthly per capita Part A reimbursements during the demonstration periods were not significantly different from reimbursements incurred during the pre-demonstration period.

Among men without Black Lung benefits monthly per capita Part A reimbursements increased by 86.6 percent, from \$122.92 in FY 1988 to \$229.34 in FY 1993. Despite this substantial growth reimbursements during the pre-demonstration period were not significantly different from reimbursements during the demonstration. Throughout the six-year study period men with Black Lung had monthly Part A reimbursements that were greater than the reimbursements of other male Funds members. This difference in reimbursements, which was never significant, grew from \$44.67 in FY 1988 to \$65.95 in FY 1993.

Monthly per capita Part A reimbursements for inpatient short stays exhibited patterns similar to those of total Part A reimbursements. Reimbursements grew over the study period,

Figure 7.11

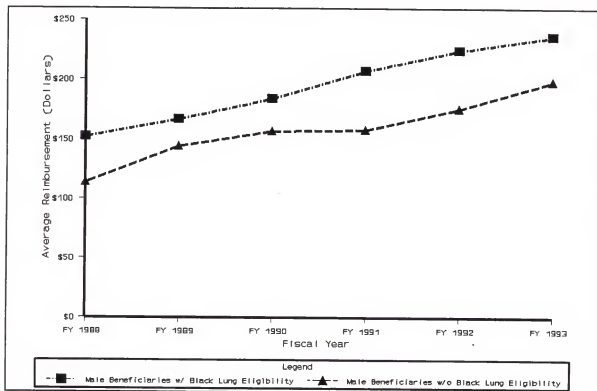
**Average Medicare Part A Reimbursement per Eligibility Month by  
Receipt of Black Lung Benefits  
Fiscal Years 1988-1993**



however, this growth did not result in significant differences across the pre-demonstration and demonstration periods or across men with or without Black Lung benefits in any given period. Figure 7.12 presents Part A short stay reimbursements for men by receipt of Black Lung benefits. Among men with Black Lung monthly per capita Part A reimbursements for short stays grew from \$152.39 in FY 1988 to \$235.94 in FY 1993. Short stay reimbursements

Figure 7.12

**Average Medicare Part A Short Stay Reimbursements per Eligibility Month by  
Receipt of Black Lung Benefits  
Fiscal Years 1988-1993**



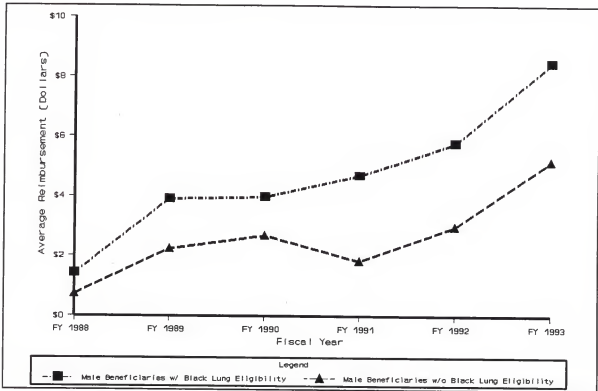
incurred during the demonstration were not significantly greater than those incurred in the pre-demonstration period.

Among men without Black Lung benefits monthly per capita Part A reimbursements for short stays increased from \$114.29 in FY 1988 to \$198.39 in FY 1993, an increase of 73.6 percent. Despite this growth, short stay reimbursements for these men were not significantly different across the pre-demonstration period and the two demonstration periods. The difference in Part A short stay reimbursements between men with and without Black Lung, which were never significant, fell slightly over the six years from \$38.10 in FY 1988 to \$37.55 in FY 1993.

Among men with Black Lung benefits monthly per capita Part A reimbursements for SNF services increased from \$1.42 in FY 1988 to \$8.45 in FY 1993 (see Figure 7.13).

Figure 7.13

**Average Medicare SNF Stay Reimbursements per Eligibility Month by  
Receipt of Black Lung Benefits  
Fiscal Years 1988-1993**

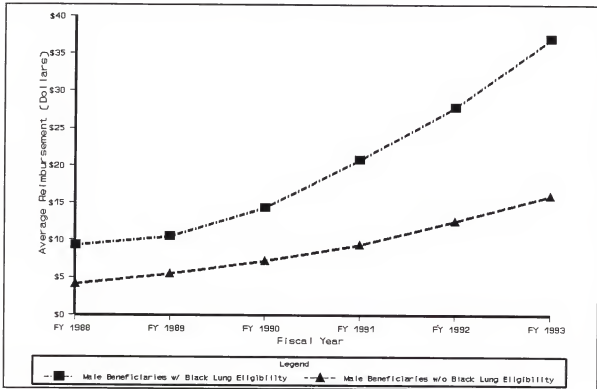


Differences across the pre-demonstration period and demonstration periods were not significant. Among men without Black Lung these reimbursements exhibited the same type of growth, from \$0.72 in FY 1988 to \$5.18 in FY 1993, and differences across the pre-demonstration period and demonstration periods were not significant. The difference in SNF reimbursements between men with and without Black Lung increased over the six years from \$0.70 in FY 1988 to \$3.27 in FY 1993, but within a given period differences between the two groups of men were never significant.

Among men with Black Lung benefits monthly per capita Part A home health reimbursements increased from \$9.27 in FY 1988 to \$37.00 in FY 1993 (see Figure 7.14). As

Figure 7.14

Average Medicare Home Health Reimbursements per Eligibility Month by  
Receipt of Black Lung Benefits  
Fiscal Years 1988-1993



in other Part A reimbursements, home health reimbursements were not significantly different between the pre-demonstration and demonstration periods. Among men without Black Lung monthly per capita Part A home health reimbursements increased from \$4.15 in FY 1988 to \$15.99 in FY 1993. Again, these reimbursements were not significantly different between the pre-demonstration and demonstration periods, and the reimbursements for men with Black Lung were not significantly different from the reimbursements for other men in any period.

The last category of reimbursements to be considered are for services rendered in hospital outpatient departments. Under some circumstances outpatient services may have reasonably substituted for physician services. If substitution between physician and outpatient services occurred as a result of the demonstration or changes in the Medicare Fee Schedule, then

we would be more likely to see this substitution in the form of changing use of outpatient services. Figure 7.15 presents outpatient reimbursements for male Funds members by receipt of Black Lung benefits.

Monthly per capita reimbursements for outpatient services among men with Black Lung benefits increased faster during the demonstration, an average annual rate of increase of 12.0 percent, compared to the pre-demonstration period when reimbursements grew at an average annual rate of 5.9 percent. Overall these reimbursements increased from \$17.03 in FY 1988 to \$26.92 in FY 1993, an increase of 58 percent. Despite this growth in reimbursements for outpatient services, outpatient reimbursements were not significantly different across the pre-demonstration and demonstration periods.

Among men without Black Lung benefits outpatient reimbursements grew at approximately the same rate during the demonstration as during the pre-demonstration years, 13.3 percent average annual growth during the demonstration and 12.8 percent average annual growth in the three years prior to the demonstration. Overall their outpatient reimbursements grew from \$13.96 in FY 1988 to \$25.36 in FY 1993, an increase of 81.7 percent. Reimbursements for outpatient services, however, were not significantly different across the pre-demonstration and demonstration periods.

## **PART A UTILIZATION**

Similar to Part B utilization, the use of Part A services increased among male Funds members during the six-year study period. Figure 7.16 presents the percentage of men by receipt of Black Lung benefits who used any Part A services during the six years. The percentage of male Funds members with Black Lung benefits using Part A services grew from 31.7 percent in FY 1988 to 34.6 percent in FY 1993. This growth did not result in significant differences between the pre-demonstration and demonstration periods in the percentage of men using Part A services.

Figure 7.15

Average Medicare Hospital Outpatient Department Reimbursements per Eligibility  
Month by Receipt of Black Lung Benefits  
Fiscal Years 1988-1993

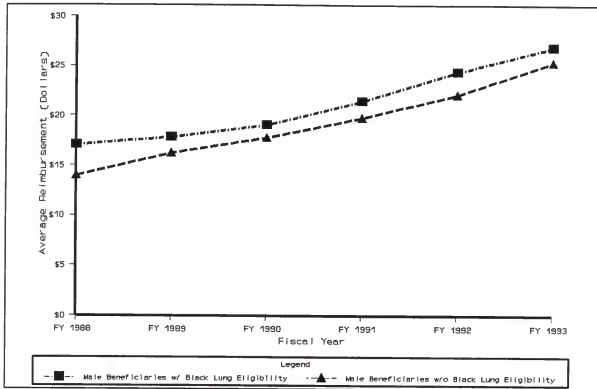
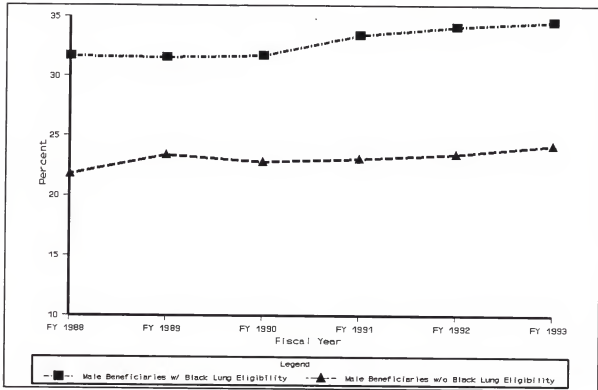


Figure 7.16

**Percentage of Male Beneficiaries  
Using Any Part B Services by Receipt of Black Lung Benefits  
Fiscal Years 1988-1993**



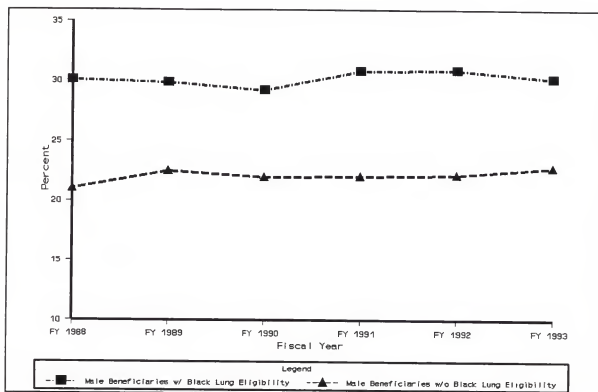
The percentage of male Funds members without Black Lung benefits using Part A services also grew, from 21.8 percent in FY 1988 to 24.2 percent in FY 1993. This growth also did not result in significant differences in the percentage of users between the pre-demonstration and demonstration periods. During the pre-demonstration period and the demonstration period men with Black Lung benefits were significantly ( $p < .01$ ) more likely to have used a Part A service compared to other male Funds members. In FY 1988 the difference in utilization was 9.9 percentage points, by FY 1993 this difference had increased slightly to 10.3 percentage points.

The incidence of any Part A short stay admissions did not change over the study period. Figure 7.17 presents the percentage of male Funds members by receipt of Black Lung



Figure 7.17

Percentage of Male Beneficiaries with Any Inpatient Short Stay Use by  
Receipt of Black Lung Benefits  
Fiscal Years 1988-1993



benefits who had any short stay admission. The percentage of men with Black Lung who had any admission was 30.1 percent in FY 1988 and 30.2 percent in FY 1993. The intensity of short stay use, the number of short stay admissions and length of stay, also did not change over the study period. Among men without Black Lung the percentage with any short stay admissions increased from 21.1 percent in FY 1988 to 22.8 percent in FY 1993. The difference in the percentage who had any short stay admissions between men with and without Black Lung decreased slightly from 9.0 percentage points in FY 1988 to 7.4 percentage points in FY 1993. These differences were significant ( $p < .01$ ) during the pre-demonstration period and the demonstration periods, however, the intensity of use was never significantly different across the two groups of men.

The incidence of any SNF use among male Funds members with Black Lung benefits increased over the six years resulting in significantly ( $p < .05$ ) more men with any SNF admission during the demonstration periods relative to the pre-demonstration period (see Figure 7.18). SNF use grew from 0.9 percent in FY 1988 to 2.4 percent in FY 1993. However, male Funds members without Black Lung were no more likely to have had a SNF admission during the demonstration relative to the years prior to the demonstration even though the percentage of men with any SNF use grew from 0.4 percent in FY 1988 to 1.5 percent in FY 1993. As in short stay utilization, the intensity of SNF services, the number of admissions and covered days, were not significantly different across the pre-demonstration and demonstration periods for either group. In addition, in any given period men with Black Lung were no more likely to have had a SNF admission compared to men without Black Lung and among men with any SNF admission, the intensity of SNF services was not significantly different across the two groups.

As seen in the general population of Funds members, the incidence of home health utilization increased among male Funds members with Black Lung benefits (see Figure 7.19). Use of home health services grew from 7.8 percent in FY 1988 to 13.9 percent in FY 1993. The use of home health services was significantly ( $p < .01$ ) greater in the demonstration periods relative to the pre-demonstration period. Among those members with any home health use the number of home health visits, however, were not significantly different across the pre-demonstration and demonstration periods.

The percentage of male funds members without Black Lung benefits with any home health use increased from 3.8 percent in FY 1988 to 6.5 percent in FY 1993. This growth did not result in significant differences in home health use across the pre-demonstration and demonstration periods.

The utilization of home health services among men with Black Lung benefits was significantly ( $p < .01$ ) greater than the utilization among men without Black Lung and the gap increased over the six year period. However, among users of home health services, men with Black Lung benefits had no more visits than men without Black Lung.

Figure 7.18

Percentage of Male Beneficiaries with Any Skilled Nursing Facility Use by  
Receipt of Black Lung Benefits  
Fiscal Years 1988-1993

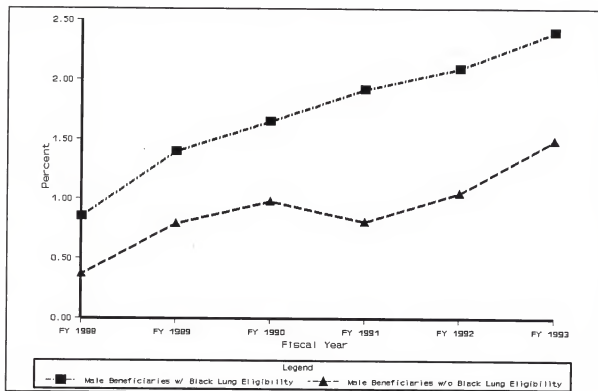


Figure 7.19

Percentage of Male Beneficiaries with Any Home Health Use by  
Receipt of Black Lung Benefits  
Fiscal Years 1988-1993

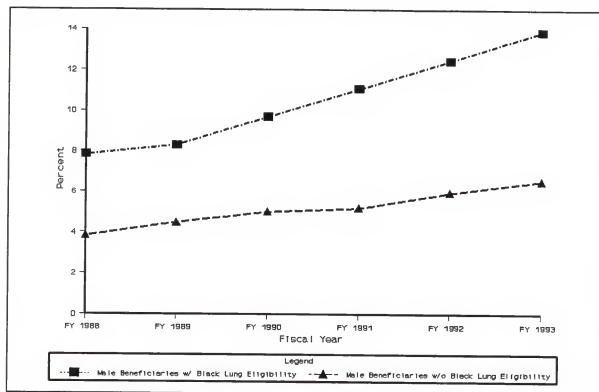
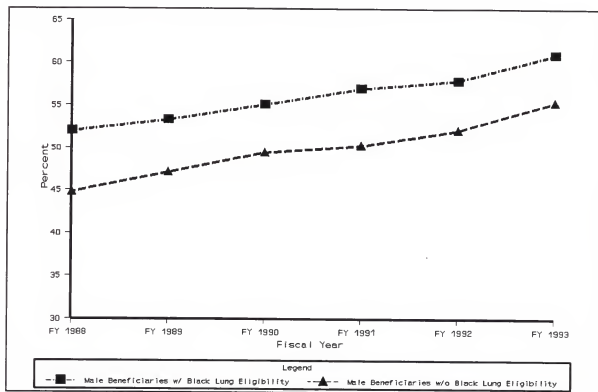


Figure 7.20 presents the percentage of male Funds members by receipt of Black Lung benefits who used any hospital outpatient services during the six-year study period. Use of outpatient services grew from 52.0 percent in FY 1988 to 60.9 percent in FY 1993. The percentage of users was significantly different between the pre-demonstration and demonstration periods, however, men with Black Lung were no more likely to have used outpatient services compared to men without Black Lung benefits. Men without Black Lung benefits also increased their use of outpatient services from 44.8 percent in FY 1988 to 55.4 percent in FY 1993. Unlike men with Black Lung, the percentage of users of outpatient services was not significantly different between the pre-demonstration and demonstration periods.

Figure 7.20

Percentage of Male Beneficiaries with Any Hospital Outpatient Department Use by  
Receipt of Black Lung Benefits  
Fiscal Years 1988-1993

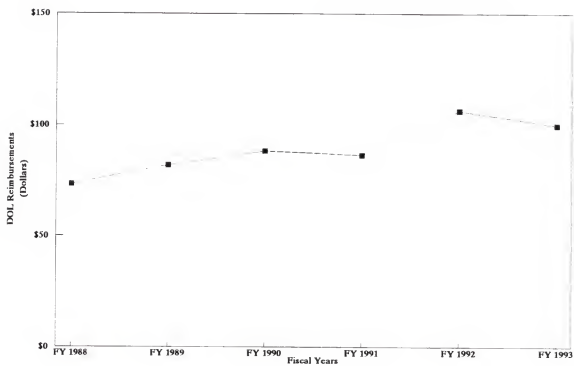


### DOL Reimbursements

Men with Black Lung benefits also receive care reimbursed through the DOL benefit program. DOL benefits presented one avenue by which Part B services and reimbursements could have been substituted for DOL reimbursed services. The data indicate that this substitution may have occurred, but on a small scale. The evidence is weak and does not support a funding that this substitution occurred.

Similar to Part B allowed charges and Part A reimbursements, DOL reimbursements increased steadily during the pre-demonstration years (see Figure 7.21). During FY 1991, the first year of the demonstration, DOL reimbursements contracted. Total reimbursements fell by

Figure 7.21  
DOL Reimbursements per Eligibility Month  
for Men with Black Lung  
Fiscal Years 1988 – 1993



2.1 percent while physician/supplier reimbursements dropped 21.9 percent. At the same time, Part B allowed total charges for men with Black Lung increased by 8.1 percent while physician allowed charges increased by 7.0 percent. DOL reimbursements recovered in FY 1992 while Part B allowed charges fell, total charges fell by 6.7 percent while physician charges dropped 8.6 percent. In FY 1993, when the Medicare Fee Schedule was implemented, DOL reimbursements and Part B allowed charges contracted, DOL reimbursements fell by 6.0 to 7.8 percent while Part B charges fell by 21.1 and 24.2 percent.

## **8.0 COMPARISON OF COST AND UTILIZATION OF MEDICARE SERVICES BETWEEN FEMALE UMWA HRF MEDICARE BENEFICIARIES AND A SAMPLE OF FEMALE MEDICARE BENEFICIARIES**

In this section we compare female Funds beneficiaries and a five percent sample of women whose health care utilization is captured in the BMAD IV files. The comparison women were selected to match the state-by-state geographic distribution of the Funds women. The analysis in this chapter involves a group of individuals who were not a part of the demonstration. Unlike our earlier comparisons within the population of Funds beneficiaries, this part of the analysis allows us to identify general trends in the Medicare population that were at work during the six-year study period. We used women for this part of the study because, relative to men, their unmeasured health status is more readily comparable. The discussion that follows focuses on the differences between female Funds members and their female counterparts in the general Medicare population.

The data presented below support our findings in the full population of Funds members. The demonstration was associated with few measurable changes in costs and utilization of Medicare services. The implementation of the Medicare Fee Schedule, however, was associated with a reduction in Part B allowed charges among female Funds members. After the fee schedule change the differences in Part B allowed charges across female Funds members and female Medicare beneficiaries were reduced and insignificant. Prior to the fee schedule change the gap between Funds members and the sample of Medicare beneficiaries were significantly different. These changes were evident in allowed physician charges and to a lesser extent in allowed non-physician charges. It also appears that after the Medicare Fee Schedule change there was a slight drop in the volume of total physician services supplied to female Funds members.

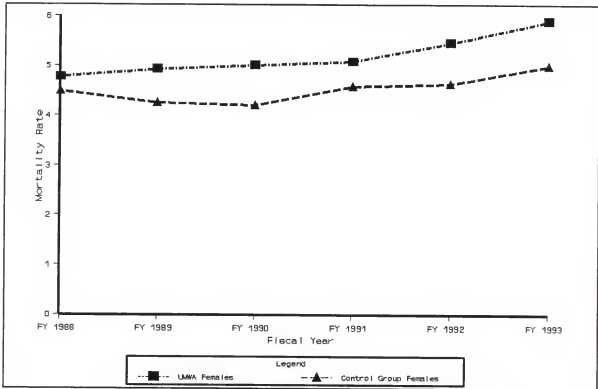
### **HEALTH INDICATORS: AGE AND MORTALITY**

Compared to the general female Medicare population, female Funds members were on average two years older. Figure 8.1 shows that over the study period female Funds members aged at a slightly faster rate which resulted in a small increased difference in age between the two groups. These age differences presumably were reflected in slightly lower



Figure 8.2

**Mortality Rate of Female UMWA Beneficiaries &  
Female Control Group Medicare Beneficiaries  
Fiscal Year 1988-1993**

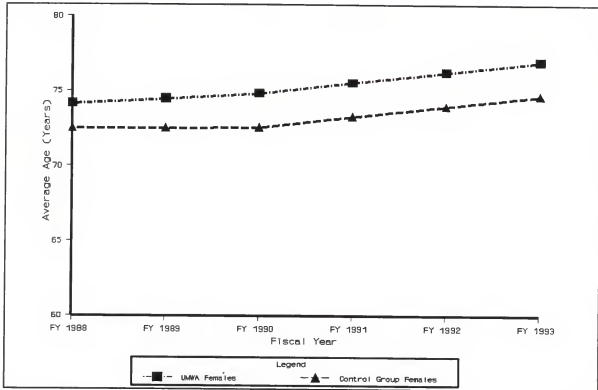


As seen in the overall population of Funds members, the demonstration was not statistically associated with any measurable change in the level or growth of Part B allowed charges incurred by female Funds members. The change in the Medicare Fee Schedule, however, was associated with lower Part B allowed charges among female Funds members so that in FY 1993, unlike prior years, allowed charges incurred by female Funds members were similar to those incurred by female Medicare beneficiaries.

Figure 8.3 shows average Part B allowed charges for female Funds members and female Medicare beneficiaries throughout the six-year study period. Among female Funds members average monthly per capita Part B allowed charges increased during the pre-

Figure 8.1

**Average Age of Female UMWA Beneficiaries &  
Female Control Group Medicare Beneficiaries  
Fiscal Year 1988-1993**



levels of health and higher health care costs among female Funds members. Mortality data, presented in Figure 8.2, showed that over the six years the incidence of mortality was slightly higher and increased faster among female Funds members. The difference between female Funds members and female Medicare beneficiaries in mortality rates increased from 0.3 percentage points in FY 1988 to 0.9 percentage points in FY 1993.

#### **PART B ALLOWED CHARGES**

In this section we examine allowed charges to avoid focusing on the necessary approximations to determine reimbursements. Because our focus is not on absolute values but on trends over time and differences across the two groups of women, our findings would be the same if reimbursements were examined.

demonstration period from \$121.62 in FY 1988 to \$164.67 in FY 1991. During the demonstration period Part B allowed charges fell, particularly between fiscal years 1992 and 1993 when they fell by 20.1 percent. By FY 1993 average allowed charges among female Funds members were \$125.93. The difference between average charges in the pre-demonstration period and the demonstration period prior to the Medicare Fee Schedule change was significant ( $p < .05$ )<sup>1</sup>, but pre-demonstration allowed charges were not significantly different from charges incurred after the fee schedule change. This pattern of significant differences was also evident when the sample was restricted to only users of Part B services. Part B allowed charges converted to constant 1993 dollars, however, were not significantly different between the pre-demonstration and demonstration periods.

Among female Medicare beneficiaries average monthly per capita Part B allowed charges increased steadily throughout the six-year study period, from \$74.44 in FY 1988 to \$92.14 in FY 1991 and then to \$98.68 in FY 1993. Allowed charges among these women did not contract after the change in the fee schedule. Despite this steady growth, average allowed charges incurred by these women were not significantly different across the pre-demonstration and demonstration periods.

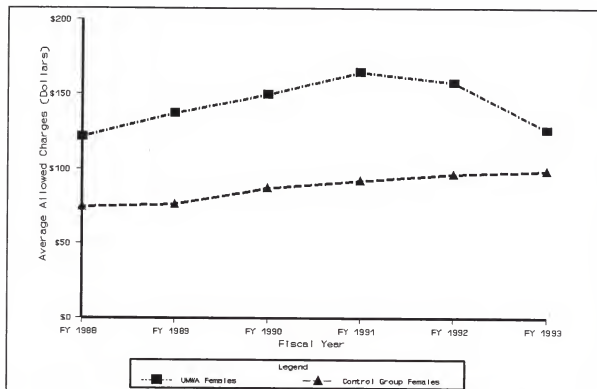
Over the study period female Funds members had monthly per capita Part B allowed charges that were greater than those of female Medicare beneficiaries. Due to the varying growth patterns between the two groups of women the difference in charges increased throughout the pre-demonstration period and then decreased during the demonstration period. The difference in Part B allowed charges between female Funds members and female Medicare beneficiaries was \$47.18 in FY 1988, this difference grew to \$72.53 in FY 1991, and then fell to \$27.25 in FY 1993. The difference between the two groups in Part B allowed charges was significant ( $p < .01$ ) during the pre-demonstration period and the demonstration period prior to - \*\*the Medicare Fee Schedule change. After the change in the fee schedule the difference was insignificant.

---

<sup>1</sup>All tests are two-tailed tests.

Figure 8.3

**Average Medicare Part B Allowed Charges per Eligibility Month of Female UMWA Beneficiaries & Female Control Group Medicare Beneficiaries  
Fiscal Year 1988-1993**



Monthly per capita Part B physician allowed charges reflected the same patterns as those seen in total Part B allowed charges. Figure 8.4 presents the trends in average monthly per capita Part B allowed physician charges for female Funds members and female Medicare beneficiaries.

Among female Funds members Part B allowed physician charges increased from \$99.08 in FY 1988 to \$130.08 in FY 1991, physician charges then fell to \$92.49 by FY 1993. The differences between pre-demonstration and demonstration allowed physician charges were not significant, even when the analysis was restricted to only users of physician services. When physician charges were disaggregated into different service categories charges for office visits

and emergency room visits were significantly ( $p < .01$ ) greater during the demonstration period prior to the Medicare Fee Schedule change compared to the same charges during the pre-demonstration period. After the fee schedule change the differences were insignificant.

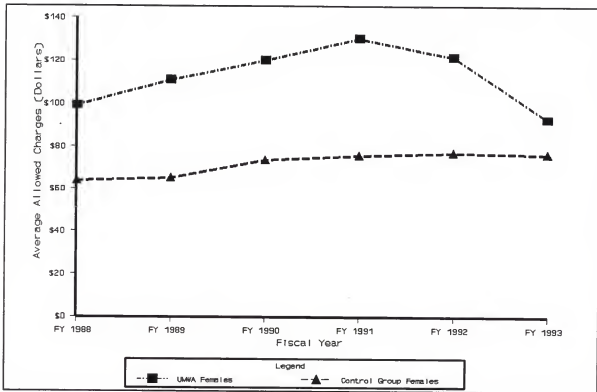
When allowed physician charges were converted to constant 1993 dollars, the difference in charges between the pre-demonstration period and the demonstration period prior to the Medicare Fee Schedule change was not significant. After the fee schedule change allowed physician charges in constant 1993 dollars were significantly less ( $p < .01$ ) than the same charges incurred during the pre-demonstration period. Changes in allowed physician charges in constant 1993 dollars for office visits reflected these changes. Charges in constant 1993 dollars for office visits were not significantly different across the pre-demonstration period and the demonstration period prior to the Medicare Fee Schedule change. After the fee schedule change office visit charges in constant 1993 dollars fell and were significantly different compared to the same charges during the pre-demonstration period.

Among female Medicare beneficiaries monthly per capita Part B allowed physician charges increased from \$63.89 in FY 1988 to \$76.16 in FY 1993. Allowed physician charges among these women did not fall after the change in the fee schedule. Despite steady growth in allowed physician charges among these women, physician charges during the demonstration period were not significantly different from charges in the pre-demonstration period, even when the analysis was restricted to only users of physician services or allowed physician charges were converted to constant 1993 dollars. Allowed physician charges for office visits grew throughout the study period and these charges were significantly different across the pre-demonstration and demonstration periods. However, significant differences were not evident when the analysis was restricted to only beneficiaries with physician office visits or when charges were converted to constant 1993 dollars.

Over the study period female Funds members consistently incurred greater monthly per capita allowed physician charges compared to female Medicare beneficiaries. The difference in charges across the two groups of women initially grew from \$35.19 in FY 1988 to \$54.58 in FY 1991. This difference contracted during the demonstration period to \$16.33 in FY 1993. The overall average allowed physician charge was significantly different across the two groups

Figure 8.4

**Average Medicare Part B Allowed Physician Charges per Eligibility Month of Female UMWA Beneficiaries & Female Control Group Medicare Beneficiaries Fiscal Year 1988-1993**



of women during the pre-demonstration period and the demonstration period prior to the change in the Medicare Fee Schedule ( $p < .01$ ). However, after the Medicare Fee Schedule change the difference was insignificant.

Charges for office, hospital, and emergency room visits were greater ( $p < .01$ ) for female Funds members compared to female Medicare beneficiaries during the pre-demonstration period and the demonstration period prior to the Medicare Fee Schedule change. After the fee schedule change only charges for office visits were significantly ( $p < .01$ ) different across the two groups of women. When only users of the services were analyzed the results were similar

except that charges for hospital visits were not significantly different across the two groups of women in any period.

Monthly per capita Part B allowed non-physician charges followed patterns similar to total Part B allowed charges and allowed physician charges. Figure 8.5 presents allowed non-physician charges for female Funds members and female Medicare beneficiaries over the study period. Among female Funds members non-physician charges steadily increased until FY 1993 when they fell by 7.9 percent. Differences in pre-demonstration and demonstration allowed non-physician charges were not statistically significant.

Allowed non-physician charges incurred by female Medicare beneficiaries more than doubled over the six-year study period, from \$10.55 in FY 1988 to \$22.53 in FY 1993. This growth in allowed non-physician charges resulted in significant differences in charges between the pre-demonstration and demonstration periods, however, these differences were not significant when only users of non-physician services were analyzed, or when charges were converted to constant 1993 dollars.

As seen in the other Part B allowed charges, female Funds members consistently incurred non-physician charges that were greater than those of female Medicare beneficiaries. The different growth patterns in allowed non-physician charges across the two groups of women resulted in differences that initially increased from \$11.99 in FY 1988 to \$17.95 in FY 1991 and then decreased to \$10.91 in FY 1993. During the pre-demonstration period and the demonstration period prior to the Medicare Fee Schedule change average allowed non-physician charges were significantly different across the two groups of women ( $p < .01$ ). After the fee schedule change the difference was insignificant. This pattern of significant and insignificant differences was seen when the analysis was restricted to only users of non-physician services and when allowed charges were converted to constant 1993 dollars.

Monthly per capita Part B allowed oxygen charges followed slightly different patterns relative to other Part B allowed charges. Figure 8.6 illustrates the trends in allowed oxygen charges for female Funds members and female Medicare beneficiaries. Allowed oxygen charges for both groups of women increased steadily until FY 1993 when they fell. Among female Funds members these charges fell by 17.9 percent, among female Medicare beneficiaries the fall was 4.5 percent. Within each group of women differences in oxygen charges between the pre-

Figure 8.5

Average Medicare Part B Allowed Non-Physician Charges per Eligibility Month of  
Female UMWA Beneficiaries & Female Control Group Medicare Beneficiaries  
Fiscal Years 1988-1993

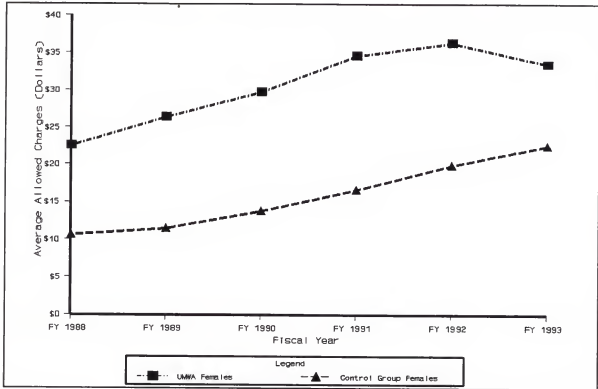
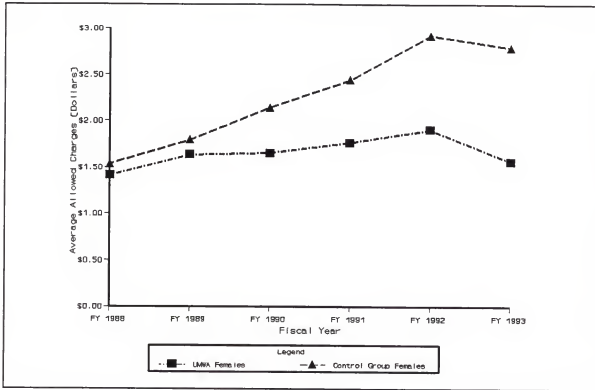




Figure 8.6

**Average Medicare Part B Allowed Oxygen Charges per Eligibility Month of Eligibility  
Female UMWA Beneficiaries & Female Control Group Medicare Beneficiaries  
Fiscal Years 1988-1993**



demonstration and demonstration periods were not significant. In contrast to the Part B allowed charges previously discussed, female Medicare beneficiaries consistently incurred greater monthly per capita Part B allowed oxygen charges compared to female Funds members. The differences in allowed oxygen charges across the two groups of women steadily increased over the six-year period, however, these differences were not significant in any period.

#### **PART B UTILIZATION**

Allowed charges incorporate concepts of utilization and price. As seen in the preceding discussion of allowed non-physician charges, significant differences may have been

observed when average charges included both users and non-users of the relevant service, but the difference was insignificant when the analysis was restricted to only users of the services. In this section we examine the differences in broad measures of Part B utilization between female Funds members and female Medicare beneficiaries. The data indicated that while the percentage of women using Part B services increased over the six-year period there was a fall in the intensity of total physician services supplied to female Funds members after the Medicare Fee Schedule change.

Figure 8.7 illustrates the trend in the percentage of female Funds members and female Medicare beneficiaries using Part B services over the six years. The percentage using Part B services increased among female Funds members, from 90.2 percent in FY 1988 to 94.5 percent in FY 1992. In FY 1993 utilization fell slightly to 94.2 percent. Utilization of Part B services among female Funds members was significantly ( $p < .01$ ) different across the pre-demonstration and demonstration periods.

Among female Medicare beneficiaries the percentage using Part B services also increased to 88.4 percent in FY 1991. In FY 1992 use fell by 2.5 percentage points and between fiscal years 1992 and 1993 it fell by 0.1 percentage points. Female Medicare beneficiaries were significantly ( $p < .01$ ) more likely to have used a Part B service during the demonstration period prior to the change in the Medicare Fee Schedule, compared to the pre-demonstration period. After the fee schedule charge they were no more likely to have used these services compared to the pre-demonstration period. Despite the different trends in Part B use female Funds members were significantly ( $p < .01$ ) more likely to have used a Part B service in the pre-demonstration and demonstration periods.

Part B physician service utilization patterns were similar to total Part B utilization patterns. Figure 8.8 illustrates the percentage of women using Part B physician services. The percentage of female Funds members using Part B physician services grew from 88.2 percent in FY 1988 to 92.9 percent in FY 1993. The percentage of women who used these services was significantly ( $p < .01$ ) different across the pre-demonstration and demonstration periods. In each year a greater percentage of female Funds members used physician services relative to female Medicare beneficiaries. The differences in the percentage of users across the two groups of women was significant ( $p < .01$ ) in the pre-demonstration and demonstration periods. Among

Figure 8.7

Percentage of Female UMWA Beneficiaries &  
Female Control Group Medicare Beneficiaries Using Any Part B Services  
Fiscal Years 1988-1993

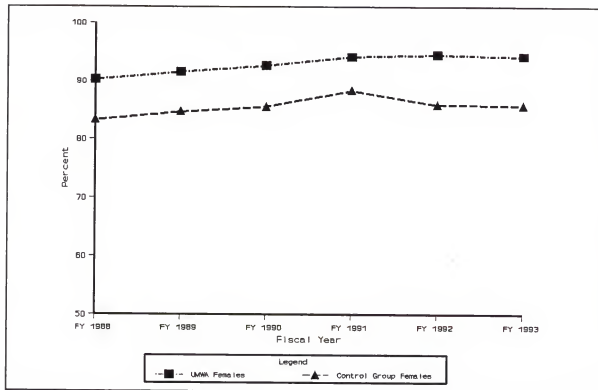
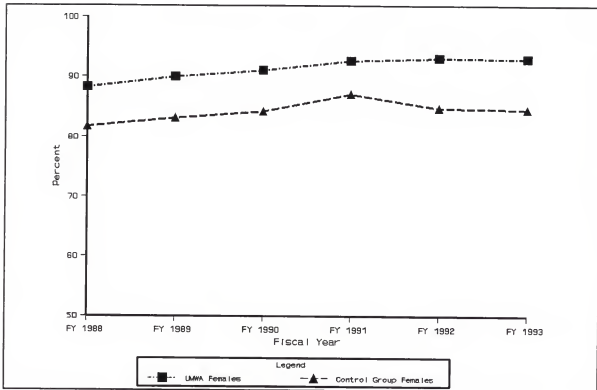


Figure 8.8

**Percentage of Female UMWA Beneficiaries &  
Female Control Group Medicare Beneficiaries Using Part B Physician Services  
Fiscal Years 1988-1993**



female Medicare beneficiaries the percentage using physician services increased from 81.7 percent in FY 1988 to 87.1 percent in FY 1991. In FY 1992 utilization dropped to 84.7 percent. Among female Medicare beneficiaries, 84.5 percent used physician services in FY1993. The initial increase in use resulted in a significant ( $p < .01$ ) difference in the percentage of women using physician services between the pre-demonstration period and the demonstration period prior to the Medicare Fee Schedule change. After the fee schedule change there was no significant difference in the percentage of female Medicare beneficiaries who used physician services.

Utilization of physician services was also evaluated using the relative value of the work units embodied in different physician services. Figure 8.9 shows the volume of total physician services and the volume associated with office visits for female Funds members and female Medicare beneficiaries over the study period. Among female Funds members the total volume of physician services increased by 0.8 percent during the pre-demonstration period. During the demonstration period the volume fell by 0.7 percent. Among female Funds members the total volume of physician services was not significantly different between the pre-demonstration and demonstration periods. However, the volume of services associated with office visits was significantly lower ( $p < .05$ ) after the Medicare Fee Schedule change as compared to the pre-demonstration period. When the analysis was restricted to only Funds members with office visits the volume of physician services during both demonstration periods was significantly lower ( $p < .05$ ) relative to the pre-demonstration period. In contrast, among female Medicare beneficiaries the differences across the pre-demonstration and demonstration periods in the volume of total physician services and services associated with office visits were not significant.

The differences in the volume of physician services received by female Funds members and female Medicare beneficiaries were generally significant. In the years prior to the demonstration female Funds members used 0.30 more total physician work units and 0.15 more work units associated with office visits ( $p < .01$  respectively) compared to female Medicare beneficiaries. During the demonstration, but prior to the Medicare Fee Schedule change, the same differences were 0.32 and 0.10 ( $p < .01$  respectively). After the fee schedule change only work units associated with office visits were significantly different at 0.09 units ( $p < .01$ ).

The small contraction seen in the volume of physician services delivered to female funds members during FY 1993 may reflect a delayed response to capitation. Support is provided by contractions in office visits between fiscal years 1991 and 1992, and again in 1992 and 1993. However, these contractions may also reflect changes associated with the Medicare Fee Schedule. Female funds members had relatively lower levels of health, as demonstrated by their higher utilization and reimbursement rates, and therefore were more likely to receive care from specialists. The resource based relative value scale (RBRVS) used in the Medicare Fee Schedule differentially affected payments to specialists. In addition, while the overall amount

of physician services received by female Medicare beneficiaries did not contract over the six-year study period, their office visits did fall by 2.2 percent between fiscal years 1992 and 1993 when the Medicare Fee Schedule was implemented.

The percentage of women who used Part B non-physician services increased steadily throughout the six-year study period. Figure 8.10 presents the percentage of women who used Part B non-physician services. This growth resulted in a significant ( $p < .01$ ) increase in the percentage of female Funds members and Medicare beneficiaries who used Part B non-physician services. Among female Funds members the use of non-physician services grew from 54.5 percent in FY 1988 to 65.5 percent in FY 1993. Among female Medicare beneficiaries these percentages were 46.1 and 58.5 respectively.

Figure 8.9

**Volume of Part B Physician Services Valued in RBRVS Work Units per Eligibility Month of Female UMWA Beneficiaries & Female Control Medicare Beneficiaries Fiscal Years 1988-1993**

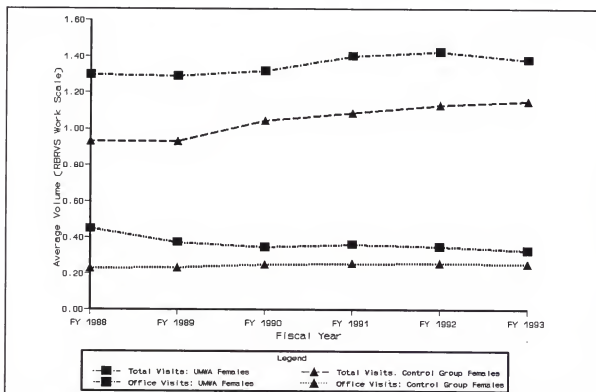
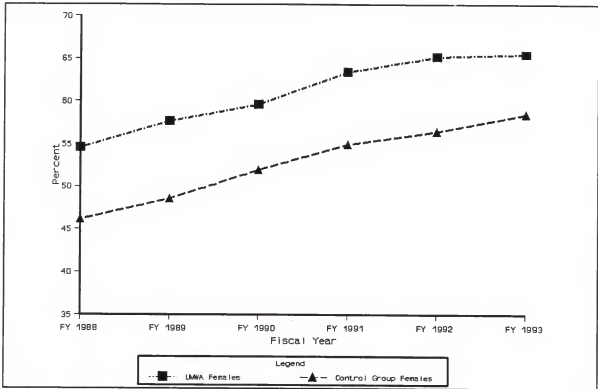


Figure 8.10

**Percentage of Female UMWA Beneficiaries & Female Control Group Medicare Beneficiaries with Any Part B Non-Physician Service Use  
Fiscal Years 1988-1993**

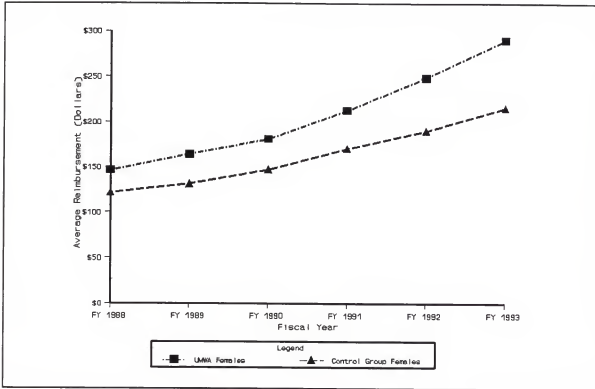


**PART A REIMBURSEMENTS**

Monthly per capita Part A reimbursement and utilization data suggested that while Part A reimbursements among female Funds members and female Medicare beneficiaries grew over the study period this growth represented growth in medical prices. Figure 8.11 presents monthly per capita Part A reimbursements for female Funds members and female Medicare beneficiaries. Part A reimbursements among female Funds members grew by 98 percent from \$146.21 in FY 1988 to \$289.74 in FY 1993. Monthly Part A reimbursements during both demonstration periods were significantly different from reimbursements during the pre-

Figure 8.11

**Average Medicare Part A Reimbursements per Eligibility Month of  
Female UMWA Beneficiaries & Female Control Group Medicare Beneficiaries  
Fiscal Years 1988-1993**



demonstration period ( $p < .05$ ). When reimbursements were converted to constant 1993 dollars there were no significant differences in Part A reimbursements between the pre-demonstration and demonstration periods.

Among female Medicare beneficiaries monthly per capita Part A reimbursements increased by 77 percent, from \$121.59 in FY 1988 to \$215.61 in FY 1993. Despite this substantial growth, reimbursements between the pre-demonstration and demonstration periods were only significantly different when the analysis was restricted to users of Part A services, however, reimbursements in constant 1993 dollars were never significantly different across the two periods. Throughout the six-year study period female Funds members had monthly Part A



reimbursements that were greater than the reimbursements of female Medicare beneficiaries. The difference in reimbursements grew from \$24.62 in FY 1988 to \$74.13 in FY 1993. These differences, however, were insignificant, even when the analysis was restricted to only users of Part A services and when reimbursements were converted to constant 1993 dollars.

Monthly per capita Part A reimbursements for inpatient short stays exhibited patterns similar to those of total Part A reimbursements. Reimbursements grew over the study period, however, this growth can be attributed to increasing medical prices. Figure 8.12 presents monthly per capita Part A short stay reimbursements for female Funds members and female Medicare beneficiaries. Among female Funds members monthly per capita Part A short stay reimbursements grew from \$129.49 in FY 1988 to \$217.67 in FY 1993, an increase of 68.1 percent. Short stay reimbursements after the Medicare Fee Schedule change were significantly greater than the same reimbursements during the pre-demonstration period ( $p < .05$ ), however, short stay reimbursements valued in constant 1993 dollars were not significantly different between the pre-demonstration and demonstration periods.

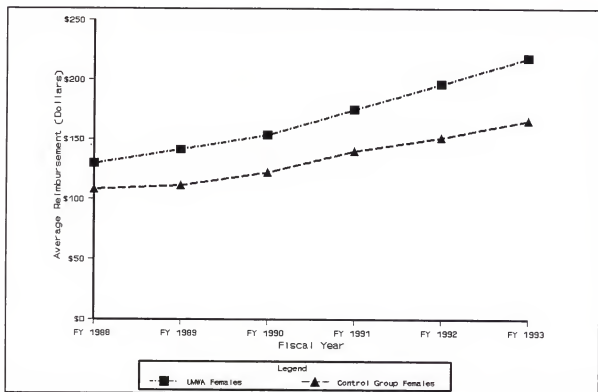
Among female Medicare beneficiaries monthly per capita Part A reimbursements for short stays increased from \$108.31 in FY 1988 to \$165.33 in FY 1993, an increase of 52.7 percent. Despite this growth short stay reimbursements for female Medicare beneficiaries were not significantly different between the pre-demonstration and demonstration periods. The difference in Part A short stay reimbursements between female Funds members and female Medicare beneficiaries more than doubled over the six years from \$21.18 in FY 1988 to \$52.34 in FY 1993. These differences, however, were not significant in either the pre-demonstration or demonstration periods.

Among female Funds members monthly per capita Part A reimbursements for SNF services increased from \$1.72 in FY 1988 to \$11.61 in FY 1993 (see Figure 8.13). Differences between the pre-demonstration and demonstration periods were not significant. Among female Medicare beneficiaries these reimbursements exhibited the same type of growth, from \$1.64 in FY 1988 to \$11.05 in FY 1993, and differences between the pre-demonstration and

demonstration periods were also not significant.<sup>2</sup> The difference in SNF reimbursements between female Funds members and female Medicare beneficiaries were not significant in any period.

Figure 8.12

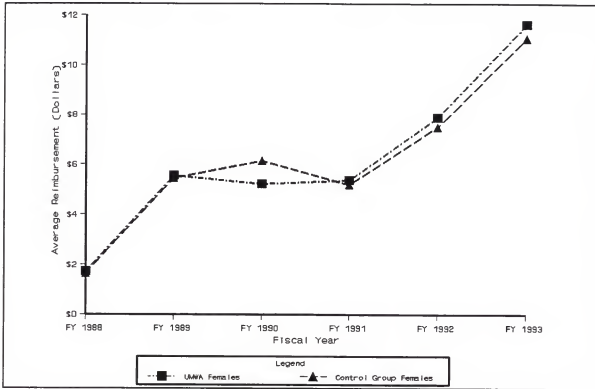
Average Medicare Inpatient Short Stay Reimbursement per Eligibility Month of Female  
UMWA Beneficiaries & Female Control Group Medicare Beneficiaries  
Fiscal Years 1988-1993



<sup>2</sup> Reimbursements for SNF services demonstrated considerable variability. The majority of women did not use these services, but even within the group of users reimbursements varied considerably and differences across periods were not significant.

Figure 8.13

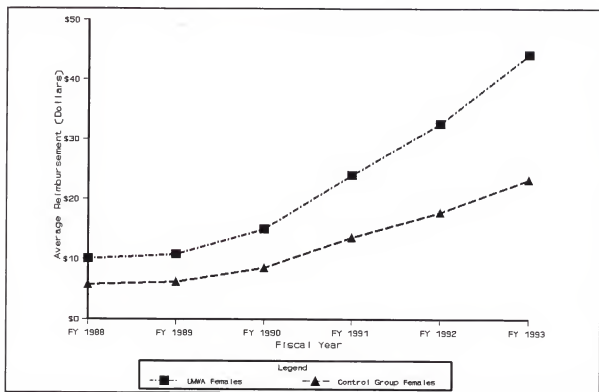
**Average Medicare SNF Stay Reimbursements per Eligibility Month of  
Female UMWA Beneficiaries & Female Control Group Medicare Beneficiaries  
Fiscal Years 1988-1993**



Among female Funds members monthly per capita Part A home health reimbursements increased from \$10.02 in FY 1988 to \$44.13 in FY 1993 (see Figure 8.14). Home health reimbursements during both demonstration periods were significantly greater than ( $p < .01$ ) the same reimbursements during the pre-demonstration period, except when the analysis was restricted to only users of home health services *and* reimbursements were converted to constant 1993 dollars. Among female Medicare beneficiaries monthly per capita Part A home health reimbursements increased from \$5.78 in FY 1988 to \$23.24 in FY 1993. These reimbursements were significantly ( $p < .05$ ) different across the pre-demonstration and demonstration periods. However, when the analysis was restricted to only users of home health

**Figure 8.14**

**Average Medicare Home Health Reimbursements per Eligibility Month of Female  
UMWA Beneficiaries & Female Control Group Medicare Beneficiaries  
Fiscal Years 1988-1993**

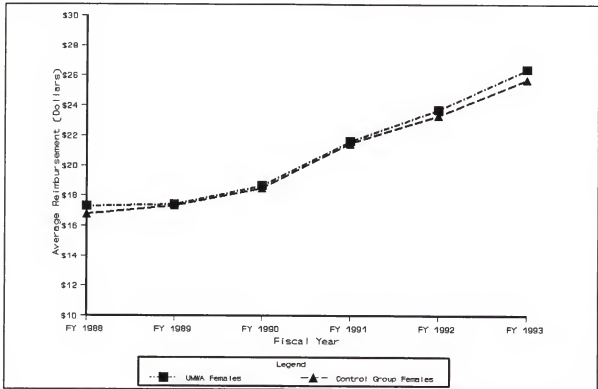


services or reimbursements were converted to constant 1993 dollars pre-demonstration and demonstration reimbursements were not significantly different.

The last category of reimbursements to be considered are for services rendered in hospital outpatient departments. Under some circumstances outpatient services may reasonably substitute for physician services. If substitution between services occurred as a result of the demonstration or changes in the Medicare Fee Schedule through impacts on physician services, then we would be more likely to see changes in the use of outpatient services. Figure 8.15 presents outpatient reimbursements for female Funds members and female Medicare beneficiaries.

Figure 8.15

**Average Medicare Hospital Outpatient Department Reimbursements per Eligibility  
Month of Female UMWA Beneficiaries &  
Female Control Group Medicare Beneficiaries  
Fiscal Years 1988-1993**



Monthly per capita reimbursements for outpatient services among female Funds members grew faster during the demonstration, an average annual rate of 10.6 percent, compared to the pre-demonstration period when reimbursements grew at an average annual rate of 4.0 percent. Overall these reimbursements increased from \$17.27 in FY 1988 to \$26.42 in FY 1993, an increase of 53 percent. Despite this growth, reimbursements for hospital outpatient services were not significantly different across the pre-demonstration and demonstration periods.

Among female Medicare beneficiaries outpatient reimbursements also grew at a faster pace during the demonstration, 9.5 percent average annual growth compared to 5.1 percent

during the pre-demonstration period. Their outpatient reimbursements grew from \$16.76 in FY 1988 to \$25.73 in FY 1993, an increase of 53.5 percent. Again, despite this growth, reimbursements for hospital outpatient services were not significantly different across the pre-demonstration and demonstration periods.

## **PART A UTILIZATION**

Similar to Part B utilization, the use of Part A services increased among female Funds members during the six-year study period. The growth in the utilization of Part A services was similar between female Funds members and female Medicare beneficiaries which suggested that the increasing use of Part A services was a trend throughout the Medicare population. Figure 8.16 presents the percentage of female Funds members and female Medicare beneficiaries who used any Part A service during the six years. The percentage of female Funds members using Part A services grew from 27.7 percent in FY 1988 to 32.6 percent in FY 1993. This growth resulted in significant differences ( $p < .01$ ) between the pre-demonstration and demonstration periods in the percentage of female Funds members using Part A services.

The percentage of female Medicare beneficiaries using Part A services also grew from 21.3 percent in FY 1988 to 25.3 percent in FY 1993. This growth resulted in significant differences ( $p < .01$ ) between the pre-demonstration and demonstration periods in the percentage of female Medicare beneficiaries using Part A services.

As the data in Figure 8.16 indicated, female Funds members also had a higher incidence of Part A use relative to female Medicare beneficiaries. In FY 1988 the difference in utilization was 6.4 percentage points, by FY 1993 this difference had grown to 7.3 percentage points. These differences in the incidence of use were statistically significant ( $p < .01$ ) in the pre-demonstration and demonstration periods.

The growth in Part A use was reflected in the incidence of Part A short stay admission. Figure 8.17 presents the percentage of female Funds members and female Medicare beneficiaries with any short stay admission. The percentage of female Funds members with any admission grew from 25.9 percent in FY 1988 to 28.2 percent in FY 1993. This growth

Figure 8.16

Percentage of Female UMWA Beneficiaries &  
Female Control Group Medicare Beneficiaries with Any Part A Use  
Fiscal Years 1988-1993

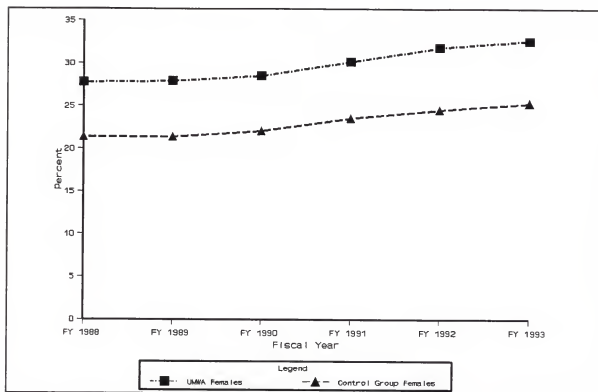
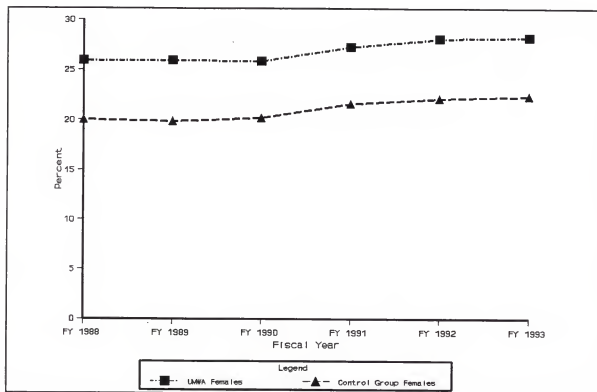


Figure 8.17

**Percentage of Female UMWA Beneficiaries &  
Female Control Group Medicare Beneficiaries with Any Inpatient Short Stay Use  
Fiscal Years 1988-1993**



resulted in significant ( $p < .01$ ) differences between the pre-demonstration and demonstration periods in the incidence of short stay use. However, the intensity of short stay use, the number of short stay admissions and length of stay per admission, was not significantly different across periods. Among female Medicare beneficiaries the percentage with at least one short stay admission increased from 20.0 percent in FY 1988 to 22.4 percent in FY 1993. The difference between female Funds members and female Medicare beneficiaries in the percentage with any short stay admission increased slightly from 5.8 percentage points in FY 1988 to 5.9 percent points in FY 1993. Within the pre-demonstration and demonstration periods the percentage with any short stay admission was significantly ( $p < .01$ ) different across the two groups of women,



however, the intensity of those services, the number of admissions and length of stay per admission, was not significantly different in any period.

The incidence of any SNF use within both groups of women increased over the six years resulting in significantly ( $p < .01$ ) more women in each group with SNF admissions during the demonstration periods relative to the pre-demonstration period (see Figure 8.18). However, female Funds members were no more likely to have a SNF admission compared to female Medicare beneficiaries in any period. As in short stay utilization, the intensity of SNF services, the number of admissions and covered days, were not significantly different between the pre-demonstration and demonstration periods for either group or between the two groups of women in any period.

The incidence of home health utilization also increased among female Funds members and female Medicare beneficiaries (see Figure 8.19). Among female Funds members the use of home health services increased from 8.2 percent in FY 1988 to 15 percent by FY 1993. The use of home health services was significantly ( $p < .01$ ) greater in the demonstration periods relative to the pre-demonstration period. Among those members with any home health use the number of home health visits was also significantly ( $p < .05$ ) greater during the demonstration periods, an average of 5.02 and 5.89 visits per eligibility month during the demonstration periods compared to an annual average of 2.99 visits per eligibility month during the pre-demonstration period.

The percentage of female Medicare beneficiaries with any home health use increased from 5.4 percent in FY 1988 to 9.5 percent in FY 1993. This growth also resulted in significantly ( $p < .01$ ) more women with any home health use in the demonstration periods relative to the pre-demonstration period. The number of home health visits among users of home health services was not significantly different across the periods, 2.47 visits per eligibility month in the pre-demonstration period relative to 3.94 and 4.23 visits per eligibility month during the demonstration periods.

As in the other service categories the utilization of home health services among female Funds members was significantly ( $p < .01$ ) greater than the utilization among female Medicare beneficiaries and the difference in use increased over the six year period. However, among users of home health services the number of visits was not significantly different across

**Figure 8.18**  
**Percentage of Funds UMWA Beneficiaries and Female Control Group Beneficiaries**  
**With Any SNF Use**  
**Fiscal Years 1988 – 1993**

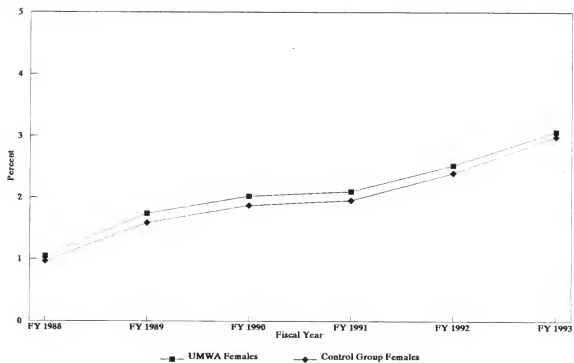
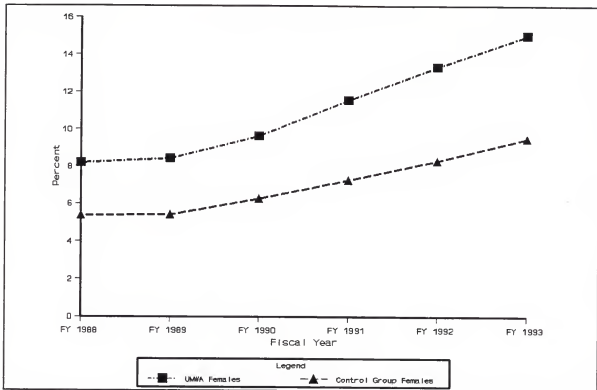


Figure 8.19

**Percentage of Female UMWA Beneficiaries &  
Female Control Group Medicare Beneficiaries with Any Home Health Use  
Fiscal Years 1988-1993**

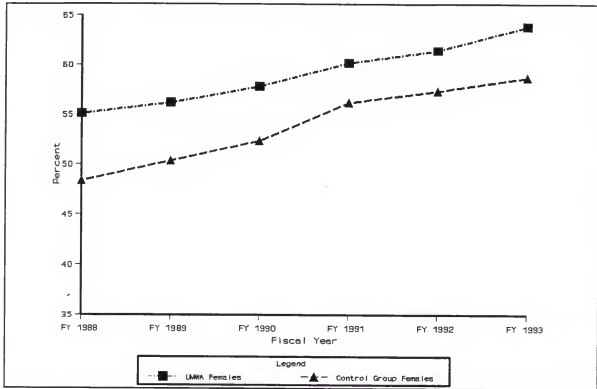


the two groups of women in any period.

Figure 8.20 presents the percentage of female Funds members and female Medicare beneficiaries who used any hospital outpatient services during the six-year study period. Among female Funds members use of hospital outpatient services increased from 55.1 percent in FY 1988 to 63.8 percent in FY 1993. The growth in use was not any more rapid during the demonstration period as compared to the pre-demonstration period. The differences in the percentage of women using outpatient services across the pre-demonstration and demonstration periods were significantly different and female Funds members were significantly ( $p < .01$ ) more likely to have used outpatient services relative to female Medicare beneficiaries in the pre-

Figure 8.20

**Percentage of Female UMWA Beneficiaries & Female Control Group Medicare Beneficiaries with Any Hospital Outpatient Department Use  
Fiscal Years 1988-1993**



demonstration and demonstration periods. As in the other Part A services, the increasing use of hospital outpatient services among female Funds members mirrored the increasing use of these services among the general Medicare population. Female Medicare beneficiaries increased their use of outpatient services from 48.3 percent in FY 1988 to 58.7 percent in FY 1993. The growth in utilization resulted in significant differences in the percentage of users across the pre-demonstration and demonstration periods.

## **9.0      MULTIVARIATE ANALYSIS OF TOTAL MEDICARE EXPENDITURES AMONG UMWA          HRF MEDICARE BENEFICIARIES**

This chapter presents a multivariate analysis of the associations between the demonstration, and the implementation of the Medicare Fee Schedule, and total annual Medicare expenditures of UMWA beneficiaries. In the preceding chapters expenditures were examined by service type. While this disaggregation was important to understanding the nature of demonstration impacts it did not clearly delineate how the demonstration affected overall expenditures. This chapter takes this last step through multivariate analyses of total annual Medicare expenditures incurred by individual Funds members. Multivariate analysis facilitated improved precision of our estimates of demonstration effects because we were able to control for other factors which influenced medical spending.

Prior to estimating an expenditure equation we estimated the probability of an inpatient admission. Funds members with any inpatient admission and those who only used ambulatory services differed in the distribution of medical expenditures and types of services used. We accounted for these differences by estimating separate expenditure equations for Funds members with an inpatient admission and Funds members with only ambulatory care. The results of the multivariate analysis suggested that, *ceteris paribus*, the demonstration and implementation of the Medicare Fee Schedule was not closely associated with a change in the probability of an inpatient admission among members. Total annual expenditures fell during the demonstration period. Among male Funds members who only used ambulatory care services, the contraction of expenditures occurred during the second year of the demonstration and an additional, but smaller, contraction was evident during the third year where the Medicare Fee Schedule was implemented. Among men who had an inpatient admission and all female Funds beneficiaries, expenditures did not fall until the third year of the demonstration and we were not able to determine whether this downward trend was due to the demonstration or the implementation of the Medicare Fee Schedule.

### **SPECIFICATION OF THE ESTIMATED MODELS**

Our first step was to model the probability of an inpatient admission in a given year using logistic regression. Most Funds members used some type of medical care in a given

year - 92 percent of Funds members used a Part B service during FY 1993; 27 percent had an inpatient short stay admission. An analysis of the probability of inpatient admission allowed us to determine the factors which partitioned Funds members into two different groups: users of ambulatory care only and users of any inpatient care.

Understanding the partitioning of Funds members into users of only ambulatory care and users of any inpatient care was important to understanding our estimated expenditure equations. The distribution of total expenditures was different for individuals with only ambulatory care as compared to individuals with inpatient use. Those with inpatient use had a distribution with a greater average expenditure and more variance compared to the distribution of individuals with only ambulatory care. Because the distribution of expenditures varied across the two groups of individuals we separately estimated a total annual expenditure equation for each group. In addition, separate expenditure equations acknowledged that the two groups of individuals used different services and factors associated with utilization of medical care differentially influenced the use of ambulatory and inpatient services. These differences in types of services used also suggested that the demonstration would have differential impacts across the two groups of members. Those members whose care primarily consisted of Part B services were expected to have expenditures that exhibited larger demonstration impacts relative to other members.

Total annual Medicare expenditures were modeled using a linear regression of the logarithm of total yearly expenditures in constant 1993 dollars. Total annual Medicare expenditures were determined for each Funds member for each fiscal year. For individuals who did not have an inpatient admission in a given year total expenditures covered only ambulatory care services. For individuals with an inpatient admission total expenditures included both ambulatory and inpatient expenditures. We used the logarithmic transformation to address the skewness in the distribution of expenses for both groups of individuals, there were a large number of individuals with relatively small expenditures and a few individuals with large or catastrophic expenses. Expenditures were converted to constant 1993 dollars to control for inflation in medical prices.

## THE DATA AND SPECIFICATION OF THE ESTIMATED EQUATIONS

To facilitate our estimations we used a five percent random sample of Funds members. In addition, we restricted the entire analysis to those Funds members who were eligible prior to the start of the demonstration period. Those Funds members who became eligible after the start of the demonstration were eliminated to maintain consistency across equations. For ease of exposition we refer to these members as original Funds members.

Our unit of analysis was a person-year. The year was based on the UMWA HRF fiscal year which starts on the first of July of each calendar year. We used the fiscal year as the time frame for ease of interpretation. We used the person as the unit of observation because most major determinants of the use of medical services are individual (e.g., age and health status).

## INDEPENDENT VARIABLES

All three equations used the same specification or set of independent variables. Because Medicare claims were the source of our data, measures of sociodemographic characteristics that influence medical care utilization and expenditure were limited. To the extent possible we controlled for individual demographic characteristics, (e.g., age and race) health status, region of residence, and county-level measures of income and medical resources.

The individual's age was measured continuously and a quadratic term was entered to capture any non-linearities between the relationship of increasing age and the dependent variables. The individual's racial group was captured through an indicator for blacks and one for other or unknown race. The comparison group was white. We controlled for gender by estimating each model separately for women and men.

Because the claims data did not contain information pertaining to the individual's income or wealth we obtained from the Area Resource File the 1990 per capita income level for the individual's county of residence. The Area Resource File compiled this income information from 1990 Census data. The absence of income information was not particularly disconcerting because the population under study worked in the same industry and the majority of the sample were presumably fully retired during the study period. Therefore, the variance in income across Funds members was believed to be small relative to other populations.

Health status was captured three different ways. First, an indicator for receipt of Black Lung benefits controlled for those men with additional benefits. Presumably these men had greater medical care needs compared to other male Funds members. Second, an indicator for death was entered in the models to control for the positive correlation between death and medical expenditures during the last year of life. The third measure of health status was the logarithm of total Medicare expenditures the individual incurred in the prior fiscal year. Medical expenditures in one year have been shown to be a significant predictor of expenditures in the following year (Newhouse et al. 1989). However, the inclusion of prior year expenditures necessarily excluded observations from FY 1988, the first year of the study period.

To control for regional variations in medical care spending we entered indicators for region of residence: Midwest, South, and West. The Northeast was the comparison region. We also included an indicator for rural residence.

The Area Resource File also provided information that allowed us to determine the number of patient care MDs per 100 people and short term hospital beds per 100 people in the individual's county of residence during 1990. These variables measured the supply of medical care resources which may have influenced an individual's access to medical care and level of expenditures.

The models also contained a measure of the number of months in the year the individual was entitled to benefits. This measure controlled for partial year enrollment which would directly influence the individual's level of total annual expenditures.

#### **THE PROBABILITY OF AN INPATIENT ADMISSION**

Table 9.1 presents the results of the estimated logistic models of the probability of an inpatient admission. During the pre-demonstration and demonstration periods death, Medicare expenditures in the prior fiscal year, and the number of entitlement months were positively associated with the probability of an inpatient admission.

During the pre-demonstration period male Funds members were less likely to have an inpatient admission as the number of short term hospital beds in the individual's county of residence increased. This inverse relationship suggested that an excess supply of beds existed in counties where Funds members were relatively healthy. Among male Funds members the



probability of an admission fell between fiscal years 1989 and 1990. This fall suggested that hospital utilization was on a downward trend prior to the demonstration. During the demonstration the probability of an admission was significantly lower in FY 1992 compared to FY 1991, however, this trend did not continue into FY 1993.

Among female Funds members the probability of an inpatient admission did not decrease between fiscal years 1989 and 1990, nor did the results indicate a negative association between the supply of short term hospital beds and the probability of an admission. However, black female Funds members and members who lived in the West were less likely to have had an admission during the pre-demonstration period relative to white women and those living the Northeast. The difference across racial groups was not evident during the demonstration, but the regional difference remained. Unlike male Funds members the probability of an inpatient admission did not vary over the demonstration years.

These results suggested that Funds members who were hospitalized had lower levels of health and the individual's health status was the primary determinant of an inpatient admission. They also indicate that the demonstration had few, if any, impacts on the incidence of hospitalization, particularly among female members who comprised over 60 percent of Funds members.

#### **TOTAL MEDICARE EXPENDITURES AMONG FUNDS MEMBERS WITH NO INPATIENT ADMISSION**

Table 9.2 presents the estimated coefficients from the regression of the logarithm of total Medicare expenditures for the group of Funds members who only used ambulatory care and did not have an inpatient admission in a given year. Expenditures were in constant 1993 dollars. Because the demonstration was a Part B pricing policy we hypothesized that demonstration impacts would be more evident within this group of Funds members. Total expenditures within this group were positively associated with death, Medicare expenditures in the prior year, and the number of entitlement months. These relationships were seen in the pre-demonstration and demonstration periods and suggested that the individual's health status was consistently the primary determinant of expenditure levels.

**TABLE 9.1**  
**LOGISTIC ANALYSIS OF ANY INPATIENT ADMISSION**  
**AMONG UMWA HRF MEDICARE BENEFICIARIES**

	Male Funds Members		Female Funds Members	
	Pre-Demonstration	Demonstration	Pre-Demonstration	Demonstration
<b>Demographic Measures</b>				
Age	0.027	0.012	0.019	0.021
Age Squared	-0.000	0.000	-2.91E-6	0.000
Black <sup>a</sup>	-0.112	0.078	<b>-0.217*</b>	-0.160
Other <sup>a</sup>	-0.111	-0.078	0.084	0.211
<b>Health Status</b>				
Black Lung Benefits	0.039	0.005		
Died	<b>2.701***</b>	<b>2.637***</b>	<b>2.990***</b>	<b>3.154***</b>
Prior Year Expenditures	<b>0.170***</b>	<b>0.176***</b>	<b>0.214***</b>	<b>0.236***</b>
<b>Region of Residence</b>				
Midwest <sup>b</sup>	0.074	-0.139	-0.048	-0.035
South <sup>b</sup>	-0.021	-0.111	-0.006	0.085
West <sup>b</sup>	-0.130	-0.160	<b>-0.393**</b>	<b>-0.342**</b>
Rural	-0.118	-0.081	0.091	-0.035
<b>County Level Measures</b>				
1990 Per Capita Income	2.00E-5	3.519E-6	1.300E-5	9.615E-6
MDs per 100	0.373	-0.537	0.021	-0.128
Short Term Beds per 100	<b>-0.418**</b>	0.234	0.007	-0.070
<b># of Entitlement Months</b>	<b>0.205***</b>	<b>0.151***</b>	<b>0.194***</b>	<b>0.232***</b>
<b>Fiscal Year</b>				
FY 90 <sup>c</sup>	<b>-0.143**</b>		-0.017	
FY 92 <sup>d</sup>		<b>-0.159**</b>		0.063
FY 93 <sup>d</sup>		-0.067		0.029
Intercept	<b>-5.555***</b>	<b>-4.994***</b>	<b>-6.514***</b>	<b>-7.407***</b>
Log-Likelihood	4,693.716	5,730.714	6,918.434	9,479.211

Notes:

- a. White race is the comparison group.
- b. The Northeast is the comparison region.
- c. The comparison year is 1989.
- d. The comparison year is 1991.

\*, \*\*, \*\*\* indicate significance levels of .05, .01, .001 respectively.

TABLE 9.2

**LEAST SQUARES ANALYSIS OF THE LOG OF TOTAL MEDICARE  
EXPENDITURES AMONG UMWA HRF MEDICARE BENEFICIARIES  
WITH ONLY AMBULATORY CARE USE**

	Male Funds Members		Female Funds Members	
	Pre-Demonstration	Demonstration	Pre-Demonstration	Demonstration
<b>Demographic Measures</b>				
Age	0.029	-0.011	<b>0.063**</b>	0.012
Age Squared	-0.000	0.000	<b>-0.000**</b>	-0.000
Black <sup>a</sup>	0.090	0.114	0.011	<b>0.197**</b>
Other <sup>a</sup>	0.008	0.052	0.289	0.144
<b>Health Status</b>				
Black Lung	0.154	0.129		
Died	<b>2.285***</b>	<b>1.903***</b>	<b>1.017**</b>	<b>1.839***</b>
Prior Year Expenditures	<b>0.457***</b>	<b>0.485***</b>	<b>0.450***</b>	<b>0.486***</b>
<b>Region of Residence</b>				
Midwest <sup>b</sup>	-0.170	0.027	<b>-0.340***</b>	-0.123
South <sup>b</sup>	0.048	0.041	-0.050	0.054
West <sup>b</sup>	0.011	-0.275	<b>-0.353**</b>	-0.156
Rural	<b>0.315***</b>	<b>0.207**</b>	0.123	-0.090
<b>County Level Measures</b>				
1990 Per Capita Income	1.066E-5	-1.392E-6	-1.379E-6	-1.436E-5
MDs per 100	0.819	<b>1.303**</b>	0.794	0.030
Short Term Beds per 100	-0.272	-0.099	-0.066	-0.013
<b># of Entitlement Months</b>	<b>0.301***</b>	<b>0.229***</b>	<b>0.173***</b>	<b>0.313***</b>
<b>Fiscal Year</b>				
FY 90 <sup>c</sup>	<b>0.186**</b>		-0.014	
FY 92 <sup>d</sup>		<b>-0.252***</b>		-0.033
FY 93 <sup>d</sup>		<b>-0.273***</b>		<b>-0.201***</b>
Intercept	<b>-2.571**</b>	-0.503	-1.675	-1.691
R-Square	0.292	0.308	0.276	0.301

Notes:

- a. White race is the comparison group.
- b. The Northeast is the comparison region.
- c. Fiscal year 1989 is the comparison year.
- d. Fiscal year 1991 is the comparison year.

\*, \*\*, \*\*\* indicate significance levels of .05, .01, .001 respectively.

Among male Funds members in this group those who lived in rural areas had larger total expenditures relative those living in urban areas. The receipt of Black Lung benefits did not influence the level of expenditures in either the pre-demonstration or demonstration periods. During the pre-demonstration period expenditures increased between fiscal years 1991 and 1990, *ceteris paribus*. During the demonstration period expenditures fell after FY 1991 which suggested that the demonstration was associated with a contraction in expenditures within a group of members who predominately used Part B services. It was interesting to note that during the demonstration period expenditures among male Funds members were positively associated with the supply of patient care MDs. This positive relationship is consistent with earlier findings that suggested increasing numbers of physician could lead to more office visits and fewer hospital admissions through substitution of ambulatory for inpatient care (McCombs 1984).

Among female Funds members the pre-demonstration period was characterized by a positive association between age and total annual Medicare expenditures. Women who lived in the Midwest and West had expenditures that were less than those living in the Northeast. During the demonstration period the associations between age and regions were no longer evident. It is interesting to note that during the pre-demonstration period black women were less likely to have had an inpatient admission relative to white women. During the demonstration period the expenditures of black female Funds members were significantly ( $p < .05$ ) greater relative to the expenditures of white women. Expenditures incurred during FY 1993 were significantly less than expenditures incurred during FY 1991, however, expenditures between fiscal years 1991 and 1992 were not significantly different. This result suggested that either demonstration effects among these women were delayed until the third year or the negative association was capturing the impact of the implementation of the Medicare Fee Schedule. The data did not allow the testing of these hypotheses.

#### **TOTAL MEDICARE EXPENDITURES AMONG FUNDS MEMBERS WITH AN INPATIENT ADMISSION**

Table 9.3 presents the estimated coefficients from the regression of the logarithm of total Medicare expenditures within the group of Funds members who had an inpatient admission in a given year. Expenditures were converted to constant 1993 dollars. Because the

TABLE 9.3

**LEAST SQUARES ANALYSIS OF THE LOG OF TOTAL MEDICARE  
EXPENDITURES AMONG UMWA HRF MEDICARE BENEFICIARIES  
WITH ANY INPATIENT ADMISSION**

	Male Funds Members		Female Funds Members	
	Pre-Demonstration	Demonstration	Pre-Demonstration	Demonstration
<b>Demographic Measures</b>				
Age	0.089***	0.047***	0.016	0.020
Age Squared	-0.001***	-0.000***	-0.000	-0.000
Black <sup>a</sup>	0.148	0.242***	0.012	0.114*
Other <sup>a</sup>	-0.131	0.113	0.335**	-0.084
<b>Health Status</b>				
Black Lung	-0.251***	-0.116**		
Died	0.631***	0.661***	0.828***	0.582***
Prior Year Expenditures	0.051***	0.058***	0.074***	0.087***
<b>Region of Residence</b>				
Midwest <sup>b</sup>	-0.260***	-0.334***	-0.217***	-0.336***
South <sup>b</sup>	-0.229***	-0.250***	-0.122**	-0.286***
West <sup>b</sup>	-0.125	-0.280***	-0.037	-0.207**
Rural	-0.163**	-0.126**	-0.118**	-0.088**
<b>County Level Measures</b>				
1990 Per Capita Income	3.448E-6	1.106E-5	-5.48E-7	3.503E-6
MDs per 100	0.081	-0.496	0.914***	0.472*
Short Term Beds per 100	-0.247**	0.113	-0.300***	-0.177**
<b># of Entitlement Months</b>	<b>0.068***</b>	<b>0.095***</b>	<b>0.099***</b>	<b>0.072***</b>
<b>Fiscal Year</b>				
FY 90 <sup>c</sup>	0.011		0.018	
FY 92 <sup>d</sup>		-0.000		-0.023
FY 93 <sup>d</sup>		-0.098**		-0.077**
Intercept	5.287***	6.072***	7.081***	7.492***
R-Square	0.129	0.132	0.125	0.127

Notes:

- a. White race is the comparison group.
- b. The Northeast is the comparison region.
- c. Fiscal year 1989 is the comparison year.
- d. Fiscal year 1991 is the comparison year.

\*, \*\*, \*\*\* indicate significance levels of .05, .01, .001 respectively.

demonstration was a Part B pricing policy we hypothesized that demonstration impacts would be less evident within this group of Funds members relative to members whose expenditures were predominately for Part B services. As seen in the analysis of total expenditures within the group of Funds members who only used ambulatory services, total expenditures were positively associated with death, Medicare expenditures in the prior year, and the number of entitlement months. In addition, expenditures were greater in the Northeast and urban areas relative to the other three regions and rural areas. These relationships were seen in the pre-demonstration and demonstration periods.

Among male Funds members increasing age resulted in increasing total expenditures. Receipt of Black Lung benefits was negatively associated with total Medicare expenditures. This counterintuitive result suggested that men with Black Lung who received inpatient care had less costly care relative to similar men without Black Lung after controlling for differences in age and the incidence of death. This could be the result of a greater tendency of physicians to hospitalize men with Black Lung, even for conditions that would not lead them to hospitalize someone else. During the pre-demonstration period the supply of short term hospital beds was negatively associated with total expenditures. This result would be predicted by a competitive market where price is inversely related to supply. Unlike the men who only used ambulatory care, total expenditures among men with an inpatient admission did not increase between fiscal years 1989 and 1990. During the pre-demonstration period expenditures were similar across the different racial groups, during the demonstration period expenditures were greater among black men relative to white men. The negative association between expenditures and the supply of short term hospital beds was no longer evident during the demonstration period. Total expenditures were significantly ( $p < .01$ ) less during FY 1993 relative to FY 1991. This result suggested that either demonstration impacts were delayed until the last year of the demonstration or this coefficient represented the impacts of the Medicare Fee Schedule.

Among female Funds members the supply of patient care MDs was positively associated with expenditures while the supply of short term hospital beds was negatively associated with total Medicare expenditures. During the pre-demonstration period women in the other racial category had significantly greater expenditures, but there was no difference in the level of expenditures between black and white women. As seen among the men, expenditures

were similar across fiscal years 1989 and 1990. During the demonstration black women had expenditures that were greater than white women, but there were no differences across the other racial group and white women. The signs and significance of the fiscal year indicators were similar to those in the men's regression. Total expenditures in FY 1992 were similar to expenditures during FY 1991, however, expenditures in FY 1993 were significantly less than expenditures incurred during FY 1991. These coefficients suggested that either the impacts of the demonstration were delayed until FY 1993 or the Medicare Fee Schedule was associated with a significant reduction in total Medicare expenditures among female Funds members who had an inpatient admission in FY 1993.

## SUMMARY AND CONCLUSIONS

Our results indicated that the demonstration and the implementation of the Medicare Fee Schedule were not associated with changes in inpatient admissions. This result supports earlier conclusions that, in general, the demonstration was not associated with changes in Part A utilization rates. Changes in total expenditures were associated with the demonstration and fee schedule, however, the results were mixed. In most instances, total expenditures did not measurably drop until FY 1993. The only exception to this pattern were the total expenditures of male Funds members who only used ambulatory care. Their expenditures contracted during FY 1992, and then declined slightly more in FY 1993. We hypothesized that the demonstration would differently impact ambulatory reimbursements relative to hospital reimbursements and our findings among male Funds members support this hypothesis. Because the contraction was delayed until the last year of the demonstration in most groups of Funds members we were not able to determine whether the demonstration, through delayed impacts, or the implementation of the Medicare Fee Schedule precipitated the decline within these other groups. Our earlier analysis of estimated Part B charges and payments supported the hypothesis that the decline was due to the Medicare Fee Schedule.

## REFERENCES

McCombs, J.S. 1984. "Physician Treatment Decisions in a Multiple Treatment Model." *Journal of Health Economics*. 3(2):155-171.

Newhouse, J.P., W. G. Manning, E.B. Keeler, and E.M. Sloss. 1989. "Adjusting Capitation Rates Using Objective Health Measures and Prior Utilization." *Health Care Financing Review*. 10(3):41-43.



## 10.0 EPISODES OF CARE FOR ACUTE MYOCARDIAL INFARCTION

This chapter analyzes the patterns of care that were observed before and during the demonstration for those beneficiaries who were admitted to the hospital with a principal diagnosis of an acute myocardial infarction (AMI). Patients with AMIs were selected for special analyses because this fairly common, serious health condition can be treated in a number of ways that might be sensitive to the financial incentives of the demonstration. The capitation demonstration affected Part B services only. Part A covered services were reimbursed following general Medicare program rules. Similarly, the Department of Labor Black Lung benefits, which are available to many Funds beneficiaries, were reimbursed through a consistent fee-for-service methodology during the six-year period. When one of several types of services is paid under a capitated rate while other services are reimbursed using utilization-based methods there is a financial incentive for decision makers to use less of the capitated services and more of the cost-reimbursed ones. The incentive exists whether the capitated entity is operating in a for-profit way or is simply trying to minimize the chance of incurring costs that are higher than the capitated amounts.

In this demonstration, these incentives could have generated substitution out of Medicare Part B services into other covered services. Substitution produced by financial incentives would be quite difficult to detect without controlling for health status of the population being studied. Beneficiaries need so many different kinds of health care services to treat diverse conditions that it would be quite easy to misinterpret a health-related shift toward Part A services, caused for example by changing disease incidence. To control for health status and examine substitution issues during the pre-demonstration and demonstration periods, we focused on patients with AMIs.

When a UMWA beneficiary is the victim of an AMI, the Funds could reduce their financial risks by trying to shift costs to Medicare Part A services or, in the case of those with DOL Black Lung coverage, to the DOL benefit. This strategy could be accomplished by delaying discharge from an acute care hospital or increasing the use of long stay rehabilitation facilities. In most cases there may be little discretion in the choice of treatment. The patient is undoubtedly sick, is well insured, and the Part A and Part B providers share a professional responsibility for the patient's recovery. The substitution issues operate subtly and for an

unknown number of patients whose care could just as easily be handled under Part A or DOL coverage as it could be under Medicare Part B. The analysis presented in this chapter was designed to determine in broad terms how the care of AMI patients might have changed during the demonstration with particular attention paid to the fraction of total cost or charges reimbursed under Part B.

## EPISODE DEFINITION

A health care episode is initiated by a trigger event. For the episodes analyzed in this chapter, the trigger event is a hospitalization in an acute care facility for AMI. The trigger event is represented by a Medicare hospital stay record that contains one of the principal diagnosis codes for AMI. The International Classification of Diseases categories that were included are: 410.0.

The episode time period is usually defined around or relative to the trigger event. In most cases, the episode time period will include the trigger event and some time before and after that event. Given the goals of the evaluation, the time periods of the hospitalization episodes have been defined to be 90 days before through 180 days after the trigger event date of admission. Exhibit 10.1 shows a diagram of the episode time period. There is an important trade-off in the choice of the post-trigger time period. The literature on cost variations suggested that a 90-day post-trigger time interval was optimal. Longer periods are desirable for the analysis of mortality, however, longer post-trigger time periods limit the number of episodes whose post-trigger periods are still ongoing at the end of the study period. We selected 180 days as an appropriate compromise.

It is often useful for analytic purposes to specify sub-periods within the episode. Analytic measures may be computed or defined within the sub-periods and analyzed to show the patterns of utilization over the course of the episode. Four sub-periods have been specified for hospitalization episodes and are illustrated in Exhibit 10.1:

- The Trigger Event Period - the trigger event admission date through the trigger event discharge date.

- The 90-Day Pre-Admission Period - 90 days before the trigger event admission date through one day before the trigger event admission date.
- The 90-Day Post-Admission Period - the trigger even admission date through the 89th day following the trigger event admission date.
- The 180-Day Post-Admission Period - the trigger event admission date through the 179th day following the trigger event admission date.

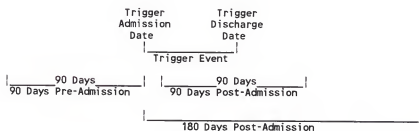
Various analytic measures are constructed within the episode sub-periods. These measures are analytic variables that represent the levels and types of health care utilization received by the patient during that period of time. Summary measures consist of aggregated charge, reimbursement, and units of service data for various kinds of utilization occurring during the sub-period. Examples of summary measures are the total charges for physician services during the 90-day post admission period and the number of acute care inpatient days in the 180 day post-admission period. Detailed measures consist of individual data items that are maintained in their original (i.e., disaggregated) form. These measures describe the different aspects and features of care provided during the episode. Examples of detailed measures are the diagnosis and procedure codes of the trigger event hospitalization.

## Exhibit 10.1

### Definition of Episode Time Period



### Definitions of Episode Sub-Periods



### SOURCE DATA AND EPISODE VARIABLES

Construction of the hospitalization episodes involved linking data from a number of utilization and other files to the sampled trigger event. This process takes information from several sources to produce an analytic file where each episode is represented as one observation or record. In the linking process, the analytic measures are derived from the source data and assigned to variables based on the episode time periods and the type of utilization (e.g., inpatient, physician, or home health).

### EPISODE FILE VARIABLES

The episode analytic file contains almost 900 variables. It is not practical to attempt to supply definitions for each individual variable. Instead, this section focuses on the important concepts used in constructing variables derived from the Medicare and DOL utilization files. Three aspects of the derivation process are discussed: variables by episode time period, variables by type of utilization and type of service, and charge and reimbursement variables.

## **VARIABLES BY EPISODE TIME PERIOD**

Utilization data were assigned to the episode sub-periods (trigger event, 90 days pre-admission, 90 days post-admission, and 180 days post-admission based on the dates of service contained in the stay or billing record. The short stay trigger event record comprised the trigger event period variables. Both detailed measures (e.g., diagnosis codes, admission and discharge dates) and summary measures (e.g., total inpatient charges) were obtained from the trigger event short stay. Variables for each of the utilization files were derived for the 90 days pre-admission, 90 days post-admission, and 180 days admission episode periods. Summary measures were created in each time period using all types of utilization.

## **VARIABLES BY TYPE OF UTILIZATION AND TYPE OF SERVICE**

Sets of variables have been created that correspond to each of the utilization source files: Medicaid short stay, long stay, skilled nursing facility, home health agency, hospital outpatient department; ALTA physician and supplier and DOL inpatient, hospital outpatient, and physician/supplier. Total charge and Medicare reimbursement measures by type of utilization were derived within the episode time periods. Similar total charge and reimbursement measures have also been constructed by combining the Part A and the Part B utilization types, and Medicare and DOL.

In addition to the total charge measures, various "type of service" classifications have been applied to the charges within each type of utilization. In some cases, the classifications are simply those that appeared in the source data files (e.g., SNF stays and HHA), while in others the charge categories have been constructed in an attempt to answer specific research questions about the patterns of utilization during the episode (e.g., OPD and ALTA).

ALTA charges were classified in two different ways: type of service and provider specialty. DOL physician and supplier charges were classified by type of service. The type of service was derived using the methodology developed by Berenson and Holahan. This method uses the HCPCS procedure code to assign one of 23 types of service to the ALTA charge. The Berenson and Holahan taxonomy has the following major type of service categories (and number of sub-classes): imaging (4), physician visits (6), procedures (9), tests (2), anesthesia (1), and other (1).

A provider specialty classification system was developed from the HCFA specialty coding scheme. Approximately 80 HCFA specialty codes were "mapped" into mutually exclusive specialty classifications. There were 15 categories for physician providers and 1 non-physicians. The ALTA charges were assigned to one of the 16 categories.

ALTA physician units of service were computed using the Medicare RBRVS relative value units for work. The work relative value units were calculated overall and by the Berenson and Holahan type of service classifications.

#### CHARGE AND REIMBURSEMENT VARIABLES

The terms charge and reimbursement may have somewhat different meanings depending on the type of utilization file from which they are derived. The basic intent of the analysis is to examine the patterns of health services and sources of payment received by patients that have particular diagnostic conditions. Charges and reimbursements are meant to represent the receipt of a service and to function as a measure of the quantity received. In their role as a quantity measure, monetary variables are less than perfect, and part of this imperfection stems from the way they are defined in the different source files.

Charges are usually interpreted as the amount a provider bills for a particular service. For Medicare inpatient hospital, SNF, HHA, hospice and OPD services and for DOL inpatient and OPD total charges were used in the analysis. These charges represent the "established" amounts the providers bill for the services. Total charges may sometimes be more than covered charges because some of the services included in the total may not be covered by Medicare or DOL. For example, Medicare has coverage limitations on the number of inpatient days a patient may use within a benefit period. Services delivered beyond the limit are non-covered, and total charges will reflect the sum of the covered and non-covered portions of the hospital stay.

The ALTA and DOL physician/supplier charges used in the analysis were allowed charges. These charges are different from the submitted charge (the amount billed by the provider). Allowed charges are determined by ALTA and by DOL as the lower of the submitted charge or the prevailing charge for that particular service. The prevailing charge is determined by usual charge for that service locally and by the provider's history of charges for that service. After implementation of the fee schedule allowed charges were determined by the MFS.

Reimbursements represent the amount Medicare or DOL has paid for the service. All reimbursements in this study should be considered estimates, however, since their source is the billing record. For Medicare short stays reimbursed under the Prospective Payment System, the billing record contains only the DRG payment amount. Additional payments are made to the hospital for capital and medical education expenses, but are not recorded on the billing record.

Medicare short stay hospitals not subject to PPS, long stay hospitals, SNFs, HHAs, and OPDs are reimbursed on a cost basis. The reimbursement amount on the billing record reflects an interim payment based on rates derived from the provider's Medicare cost reports. The interim payments may be adjusted up or down at the time of the fiscal year cost report settlement.

ALTA physician and supplier reimbursements are estimated from the allowed charges. In general, these estimates are computed as 80% of allowed charges. DOL reimbursements are equal to allowed charges since DOL pays 100% of the allowed amount.

#### **AMI EPISODES**

The Agency for Health Care Policy and Research (AHCPR) has funded a multi-year Patient Outcome Research Team (PORT) at Harvard University to study the treatment of AMI. The AMI-PORT researchers have developed key analytic strategies for the analysis of AMIs using Medicare bill and claims files. For the analysis of changing practice patterns during the demonstration, we followed their approach by focusing on:

- patients who had no hospital admission with AMI during the 90 days prior to the trigger hospital stay,
- the services used during the 90 days following the admission, and
- the utilization of coronary artery bypass grafts (CABG), percutaneous transluminal angioplasty (PTCA), and coronary catheterizations during the 90 days following admission.

Also, given the importance of substitution away from Part B services, we excluded patients who died on the day of admission because there would be little or no opportunity for substitution.

The AMI episodes were constructed to define a relatively homogenous group of patients whose care could be compared before and during the demonstration. The PORT research indicated that care for patients suffering their second, or subsequent, AMI within a short period of time was significantly different and more varied, than the care provided for an initial event. Thus, we focused on patients who had no admissions for heart attack during the 90-day pre-trigger window. We followed the PORT's practice in not starting a new episode for a heart attack that occurs in the 90 days following the first. Rather, the second event is treated as part of the post-90 day window for an AMI episode included in the analysis.

The treatment of heart attacks in the US during the evaluation analytic period has been carefully studied. With the available claims data we were able to analyze some of the important treatment options but not all. Following the PORT research, we focused on CABG, PTCA, and coronary catheterization. The claims did not have information on the use of "clot busting" drugs such as TPA or streptokinase.

#### **RELEVANT TIME PERIODS**

As noted in earlier chapters, the imposition of the Medicare Fee Schedule (MFS) by the Funds in April-June 1992 was a major event coincident with the demonstration that complicated the analysis of demonstration impacts. AMI episodes were classified into one of three categories:

- before the demonstration (trigger event admission dates from 1/1/88 through 3/20/90,
- during the demonstration but before imposition of the MFS (trigger event admission dates 10/1/90 through 12/31/91),
- during the demonstration after the imposition of the MFS (trigger event admission dates 1/1/92 through 12/31/92).

Episodes were assigned to policy-relevant time periods following a conservative strategy that included episodes that were entirely within the time period and excluded those episodes that spanned changes in policy. The 90-day post-trigger time period for all of the pre-demonstration episodes included in the analysis started and ended within the pre-demonstration



period. The 90-day post trigger time period for the pre-MFS episodes started and finished during the demonstration and before imposition of the MFS. For the post-MFS episodes we were even more conservative. Episodes were included in the post-MFS period if they started and ended within the period and if there was a 180 day interval before the end of the demonstration. We observed that the lag in filing claims could affect reporting for episodes near the end of the study period and included only those episodes that were least likely to be affected.

Substitution away from the capitated Part B services would be more clearly observed in the comparison of the pre-demonstration episodes with those demonstration era episodes that were completed before the MFS was imposed on the Funds. Changes that occurred after April 1992 could be a result either of the demonstration itself or of the changing methodology for paying physicians. It is not possible to disentangle the role of the two potential causes and the results that follow should be interpreted cautiously.

#### **RESULTS: VARIATIONS IN THE TREATMENT OF AMI**

Table 10.1 provides an overview of the AMI episodes analyzed. There were 5,613 AMI episodes included in the study. Of this total, 2,985 fell in the pre-demonstration period, 1,474 occurred after the demonstration but before the MFS was imposed, and 1,154 occurred before the end of the demonstration but under the MFS. Of the total episodes, 55% of all AMI patients were women, 36% were men who were eligible for DOL Black Lung benefits, and 9% were men without DOL benefits.

Total episode reimbursements rose from \$10,305 during the pre-demonstration period to \$13,358 per episode during the post-MFS period. While some of the increase is due to general health care inflation, we made no adjustment for inflation in this analysis for two reasons. First, there is no generally accepted deflator that could be applied without controversy to charges and reimbursements for both institutional providers and physicians and suppliers. Both the Consumer Price Index and the Medicare Economic Index are widely acknowledged as useful but not entirely adequate adjusters for inflationary trends. We used the CPI to adjust charges and reimbursements in earlier chapters but believe that the episode analysis can be better presented without adjustment. Second, and more important, the dramatic impact of the MFS on Part B spending is most clearly presented using unadjusted figures. A fall in health care

spending with adjustment for some measure of price change would be remarkable, but a decline in nominal (unadjusted) spending is most unusual.

**Table 10.1**  
**Episodes of Acute Myocardial Infarction**

	Pre-Demonstration	Demonstration	
		Pre-MFS	Post-MFS
Number of Episodes	2,985	1,474	1,154
Female Patients	1,609	842	643
Male Patients	1,376	632	511
w/DOL Black Lung	1,135	505	380
w/out DOL Coverage	239	123	128
Total Episode Reimbursements	\$10,305	\$12,413*	\$13,358*
Part A Reimbursements	\$8,016	\$9,646*	\$11,117*
Part B Reimbursements	\$2,290	\$2,767*	\$2,241
ALTA Part B Reimbursements	\$2,168	\$2,616*	\$2,050
ALTA Part B Physician Reimbursements	\$1,879	\$2,280*	\$1,694*

\* Indicates that entry significantly differs from the pre-demonstration level as determined by a t-test at a .05 level of significance.

In Table 10.1 and the following tables of the same form, an asterisk beside a number indicates that the estimate significantly differs from the pre-demonstration counterpart. For continuous variables such as reimbursement amounts, a two tailed t-test was used to test for significant differences. Chi-square tests were employed to test for differences in proportions. The standard significance level, 95%, was used throughout.

Total episode reimbursements and Part A reimbursements were higher for both parts of the demonstration period examined. Part B reimbursements followed a different pattern. The early demonstration period experienced substantial growth in Part B reimbursements, a 21% increase from \$2,290 to \$2,767. The imposition of the MFS, however, appears to have totally eliminated this rise and Part B reimbursements at the end of the demonstration were roughly equal to those of the pre-demonstration period.

Table 10.1 presents three progressively more specific statistics on Part B reimbursements that make the UFSA more likely cause than the demonstration. The most comprehensive includes physician, supplier, and hospital outpatient department reimbursements. These were reimbursed either by the Funds administrator, ALTA, or in the case of hospital outpatient department charges by the Medicare Fiscal Intermediaries. The ALTA Part B reimbursements exclude the hospital outpatient department reimbursements. The ALTA Part B physician reimbursements show most clearly the effect of the MFS and the driving force it played in affecting the total Part B picture. Physician reimbursements were significantly below the pre-demonstration level after the imposition of the MFS. This decline more than offset the general rise in supplier and OPD reimbursements.

To examine the potential substitution of Part A services for Part B services, we examined first those key measures of specific resources identified in the literature. Table 10.2 examines several measures of utilization within the 90-day post admission time period. First, length of stay during the trigger admission for heart attack fell during the demonstration period. This decline was significant and independent of the imposition of the MFS. Post-trigger institutional days tell a different story, however. During the early period of the demonstration, patients received almost identical numbers of institutional days, but during the post-MFS period total institutional days (excluding the trigger stay) were significantly higher than the pre-demonstration period. Of course, the 0.9 day increase in post-trigger institutional days exactly matches the 0.9 decrease in length of stay during the initial hospital stay, so it is tempting to say that any substitution that occurred was within Part A. That is a likely, but not provable, explanation for the observed patterns.

**Table 10.2**  
**Utilization of Services During the Episode**

	Pre-Demonstration	Demonstration	
		Pre-MFS	Post-MFS
Length of Stay during Trigger Admission	9.0	8.4*	8.1*
Total Institutional Days During Episode	5.0	5.1	5.9*
Percentage of Episodes w/CABG	5.5	7.9*	7.5*
Percentage of Episodes w/PTCA	4.1	6.3*	5.7*
Percentage of Episodes w/Cardiac Catheter	28.1	31.9*	34.1*
Percent of Patients who died w/in 90 days of Trigger Admission	27.3	25.1	25.7

\* Indicates that entry differs from the pre-demonstration level in statistically significant amount as determined by a t-test at a .05 level of significance.

Table 10.2 indicates that over time increasing numbers of UMWA Funds beneficiaries were receiving key clinical services, CABG, PTCA, and cardiac catheterization. In the pre-demonstration period about 5% of all episodes had either a CABG or PTCA and over a quarter had a cardiac catheterization. In the years of the demonstration, these percentages all rose. For CABG and PTCA the percentages went up about 2 percentage points respectively, for cardiac catheterization the growth was larger. These three procedures have both Part A and Part B components and these changes may have little to do with the demonstration. In the general Medicare population, these procedures were all becoming increasingly common so the findings from this study most likely reflect the general trends in the country. (Comparing the pre- and post-MFS columns indicates that the small declines in utilization of CABG and PTCA were not statistically significant, t-statistics of 0.5 and 0.6 respectively.) Finally, Table 10.2 indicates that the mortality of patients over the post-90 day period has been essentially unchanged during the demonstration period. Although not shown in the tables, the 180 day post AMI mortality was also unchanged.

Table 10.3 examines the substitution between Part A and Part B services by computing the share of total episode reimbursements that were attributable to different kinds of services. These findings produce a satisfying control for general health care inflationary trends because the shares were defined as Part B spending divided by the total episode reimbursements. There are two essential messages in this table: First, before the implementation of the MFS, AMI episodes had the same distribution of costs during the demonstration as they had during the period just prior to the demonstration. That is, the second column of Table 10.3 is virtually the same as the first. The second finding in this table is that coincident with the imposition of the MFS, the share of total reimbursements that accrued to physicians declined by five percentage points. This decline was offset by a corresponding increase in the share of reimbursements attributable to Part A services. Thus, using shares of episode reimbursements to examine potential substitution caused by the demonstration suggests that new physician pricing rules, not the capitation demonstration, changed the payment patterns for treatment of heart attacks.

**Table 10.3**  
**Average Percentage of Episode Reimbursements in Different Categories**

	Pre-Demonstration	Demonstration	
		Pre-MFS	Post-MFS
Number of Episodes	2,985	1,474	1,154
Total Episode Reimbursements	100.0%	100.0%	100.0%
Part A Reimbursements	78.6	78.4	83.6*
Part B Reimbursements	21.4	21.6	16.4*
ALTA Part B Reimbursements	20.2	20.2	14.9*
ALTA Part B Physician Reimbursements	17.2	17.1	12.1*

\* Indicates that entry differs from the pre-demonstration level in statistically significant amount as determined by a t-test at a .05 level of significance.

Table 10.4 examines the ALTA Part B share in total episode reimbursements for selected types of patients. For female patients and males with DOL benefits the results are consistent with the findings reported above: nothing much changed in the distribution of total episode charges until the time period when the MFS was implemented. For males without DOL

coverage there was no significant shift in Part B share during the demonstration. In fact, the number of cases for this type of patient is relatively small and the standard errors are rather large so that nothing should be concluded from the large but not statistically significant shifts from one column to the next in Table 10.4.

**Table 10.4**  
**ALTA Part B Reimbursement as a Percentage of Episode Reimbursements**  
**for Different Populations<sup>1</sup>**

	Pre-Demonstration	Demonstration	
		Pre-MFS	Post-MFS
All AMI Patients	20.2%	20.2%	14.9%*
Females	19.5	19.2	14.7*
Males	21.0	21.5	15.1*
Males w/DOL Black Lung	21.3	20.7	14.4*
Males w/out DOL Black Lung	19.6	24.7	17.2

<sup>1</sup>Excludes hospital outpatient department visits that are handled by fiscal intermediaries.

\* Indicates that entry differs from the pre-demonstration level in statistically significant amount as determined by a t-test at a .05 level of significance.

Table 10.5 repeats virtually the same information as the previous table but reports data specifically for physician reimbursements. The findings mirror those already discussed: for the subpopulations examined the share of total episode reimbursement associated with physician reimbursements fell after the imposition of the MFS. For all but the males without DOL coverage, the decline was statistically significant. It is clear that the shift in per episode costs that was observed in Table 10.4 is coming from the changes in physician reimbursements. In fact, a separate tabulation of the share of suppliers reimbursements (the difference between tables 10.4 and 10.5 is attributable to supplier reimbursements) in total episode reimbursements rose modestly.

**Table 10.5**  
**Part B Physician Reimbursements as a Percentage of Episode Reimbursement**  
**for Different Populations**

	Pre-Demonstration	Demonstration	
		Pre-MFS	Post-MFS
All AMI Patients	17.2%	17.1%	12.1%*
Females	16.4	16.0	11.8*
Males	18.3	18.7	12.5*
Males w/DOL Black Lung	18.5	17.9	12.1*
Males w/out DOL Black Lung	17.2	21.6	13.9

\* Indicates that entry differs from the pre-demonstration level in statistically significant amount as determined by a t-test at a .05 level of significance.

Increased emphasis on primary care is one of the important issues associated with capitated payment. There are two different ways to measure the role of primary care providers in the treatment of AMIs. First, capitation could affect the amount of care provided by physicians in primary care specialties. Second, capitation should reduce the amount of emergency room services as the primary care provider intervenes earlier in the process through increased office visit utilization. Tables 10.6 and 10.7 examine these issues. Table 10.6 shows for the average AMI episode the amount and percent of physician services provided by different specialists. The share of general/family practice in total physician expenditures was approximately equal before and after the demonstration. The same was true for general internal medicine. In fact, the share of reimbursements associated with medical specialists (including cardiologists) rose during the demonstration. This change may well reflect the general trend toward specialty care.

**Table 10.6**  
**Amount and Percent of Physician Reimbursement by Specialty**  
**for the Average AMI Episode**

	Pre-Demonstration	Demonstration	
		Pre-MFS	Post-MFS
General & Family Practice	\$412 (15.2%)	\$446 (13.6%)	\$389 (15.2%)
Internal Medicine	\$420 (15.5%)	\$460 (14.1%)	\$384 (15.0%)
Medical Specialties	\$733 (27.0%)	\$1,106* (33.8%)	\$782 (30.5%)

\* Indicates that entry differs from the pre-demonstration level in statistically significant amount as determined by a t-test at a .05 level of significance.

Table 10.7 shows the amount and share of physician reimbursements in different selected Berenson and Holohan categories for physician services. Office visits were a small but constant fraction of episode reimbursements. Hospital visits comprised a larger, but still stable share of episode reimbursements. Emergency room visits, however, show an increasing share after the imposition of the MFS. The rising share of emergency room visits is a result of roughly constant (\$92 per episode post-MFS compared to \$90 pre-MFS) fees per episode during the demonstration. The other categories of visits had much lower average fees per episode after the MFS.

Tables 10.8 and 10.9 focus on the role of the DOL Black Lung program in reimbursing for care to DOL-eligible beneficiaries. The episodes analyzed to produce this table were limited to beneficiaries with Black Lung benefits. There were 1,135 AMIs during the pre-demonstration period and 885 during the demonstration. The smaller numbers reflects the declining population of beneficiaries with Black Lung benefits. For these episodes, we examined the total government reimbursements including both Medicare and DOL benefits. Table 10.8 presents the mean and median dollar amounts that comprise the total episode costs. This table includes the median reimbursements because there is considerable skewness in the cost of these AMI episodes and in particular, the use of DOL-covered oxygen services during the post-90 day



interval is a feature of less than half of all episodes and the median figures provide another view of the typical heart attack that is less sensitive to the very costly but rare events. Table 10.9 examines directly the fundamental issue for this chapter. The share of Part B reimbursements

**Table 10.7**  
**Amount and Percent of Physician Reimbursement by Type of Service**  
**for the Average AMI Episode**

	Pre-Demonstration	Demonstration	
		Pre-MFS	Post-MFS
Office Visits	\$66 (2.4 %)	\$74* (2.3 %)	\$68 (2.6 %)
Hospital Visits	\$790 (29.1 %)	\$863 (26.4 %)	\$729 (28.4 %)
Emergency Room Visits	\$65 (2.4 %)	\$90* (2.8 %)	\$92* (3.6 %)
Consultations	\$127 (4.7 %)	\$147* (4.5 %)	\$152* (5.9 %)

\* Indicates that entry differs from the pre-demonstration level in statistically significant amount as determined by a t-test at a .05 level of significance.

**Table 10.8**  
**Average (Mean) and Median Reimbursements in Different Categories**  
**for Patients Covered by the DOL Black Lung Benefit**

	Demonstration					
	Pre-Demonstration		Pre-MFS		Post-MFS	
	Mean	Median	Mean	Median	Mean	Median
Total Government Episode Reimbursements	\$10,410	\$6,658	\$12,865*	\$8,387	\$12,792*	\$8,652
Total Black Lung Reimbursements	752	45	916	126	985	78
Part A Reimbursements	7,421	4,771	9,250*	5,980	9,905*	6,416
DOL Inpatient Reimbursements	518	0	593	0	678	0
Part B Reimbursements	2,238	1,434	2,699*	1,651	1,903*	1,276
DOL Physician/Supplier, Oxygen & Outpatient Reimbursements	233	21	323*	64	307*	45
ALTA Physician Reimbursements	1,862	1,131	2,276*	1,322	1,458*	860
DOL Physician/Supplier Reimbursements	195	20	283*	62	253*	44
DOL Oxygen Reimbursements	27	0	29	0	38	0
DOL Outpatient Reimbursements	11	0	11	0	15	0

\* Indicates that entry differs from the pre-demonstration level in statistically significant amount as determined by a t-test at a .05 level of significance.

**Table 10.9**  
**Average Percentage of Episode Reimbursements in Different Categories**  
**for Patients Covered by the DOL Black Lung Benefit**

	Pre-Demonstration	Demonstration	
		Pre-MFS	Post-MFS
Number of Episodes	1,135	505	380
Total Government Episode Reimbursements	100.0%	100.0%	100.0%
Total Black Lung Reimbursements	7.2	7.1	7.7
Part A Reimbursements	71.3	71.9	77.4
DOL Inpatient Reimbursements	5.0	4.6	5.3
Part B Reimbursements	21.5	21.0	14.9
DOL Physician/Supplier, Oxygen & Outpatient Reimbursements	2.2	2.5	2.4
ALTA Physician Reimbursements	17.9	17.7	11.4
DOL Physician/Supplier Reimbursements	1.9	2.2	2.0
DOL Oxygen Reimbursements	0.3	0.2	0.3
DOL Outpatient Reimbursements	0.1	0.1	0.1

in the government's total episode reimbursement highlights the potential role of substitution in the capitation demonstration. This share was essentially unchanged during the first 20 months of the demonstration but the imposition of the MFS to pay for physician services lead to a significant reduction in Part B reimbursements.

Tables 10.8 and 10.9 provided information on AMIs among men with DOL benefits. There is some evidence in these two tables that might indicate some substitution away from the capitated Part B services into Part A and the DOL-covered services. After all, the shares of these other payers in total episode reimbursements rose during the post-MFS period. Closer examination reveals, however, that the source of the rising Part A and DOL share is the decline

in reimbursements to Part B physicians which is attributable not to the demonstration but much more likely to the MFS.

Tables 10.10 and 10.11 provide mean and median information about AMIs suffered by men without Black Lung and by female beneficiaries. In all cases, the Part B reimbursements rose along with other covered benefits during the early period of the demonstration. However, after the MFS the amount reimbursed for physician services fell while all of the other components of episode costs continued to rise, albeit modestly.

For each of these populations we would expect an effective Part B capitation demonstration to reduce total episode costs by eliminating some of the inefficiency that may have existed under the fee-for-service system. We observe instead a steadily rising mean and median episode cost. The single notable departure is in reimbursements for physician services. While it is fair to say that cost management of patients with AMI might focus first on the physician component, it is unlikely to find that impact only during the post-MFS period.

## SUMMARY AND CONCLUSIONS

Treatment of AMI among the UMWA beneficiaries changed somewhat during the six years included in this study. Surgical interventions, coronary artery bypass grafts, angioplasties, and coronary catheterizations, were more common during the latter half of the study period but these changes reflect the evolution of treatment rather than events caused by the demonstration. The mortality associated with AMI did not appear to change. During the demonstration period Part B spending declined as a percentage of total Medicare reimbursements during the 90 days following admission for AMI. The decline was attributable to changing payments for physician services and more specifically to changes that occurred after the imposition of the Medicare Fee Schedule. During the last year of the demonstration there might have been effects of capitation on patterns of care for AMI patients, but these effects were swamped by the large changes associated with the use of the MFS to reimburse physicians.

Table 10.10  
Average(Mean) and Median Reimbursements in Different Categories  
for Men without the DOL Black Lung Benefit

	Demonstration					
	Pre-Demonstration		Pre-MFS		Post-MFS	
	Mean	Median	Mean	Median	Mean	Median
Total Government Episode Reimbursements	\$11,937	\$7,408	\$14,584	\$9,354	\$15,370*	\$10,314
Part A Reimbursements	9,216	5,790	10,773	6,828	12,553*	8,372
Part B Reimbursements	2,721	1,626	3,811*	2,639	2,817	1,974
ALTA Physician Reimbursements	2,302	1,333	3,157*	2,144	2,142	1,356
ALTA Supplier Reimbursements	246	124	398*	226	441*	283
Outpatient Department Reimbursements	173	0	256	38	234	46

\*Indicates that entry differs from the pre-demonstration level in statistically significant amount as determined by a t-test at a .05 level of significance.

**Table 10.11**  
**Average(Mean) and Median Reimbursements in Different Categories**  
**for Women**

	Demonstration					
	Pre-Demonstration		Pre-MFS		Post-MFS	
	Mean	Median	Mean	Median	Mean	Median
Total Government Episode Reimbursements	\$10,525	\$7,226	\$12,300*	\$8,175	\$13,882*	\$9,301
Part A Reimbursements	8,262	5,568	9,662*	6,519	11,554*	7,757
Part B Reimbursements	2,264	1,464	2,638*	1,644	2,329	1,496
ALTA Physician Reimbursements	1,830	1,130	2,136*	1,308	1,746	1,102
ALTA Supplier Reimbursements	321	164	364	229	392*	223
Outpatient Department Reimbursements	113	0	138	0	191*	18

\*Indicates that entry differs from the pre-demonstration level in statistically significant amount as determined by a t-test at a .05 level of significance.

CMS LIBRARY



3 8095 00006047 1